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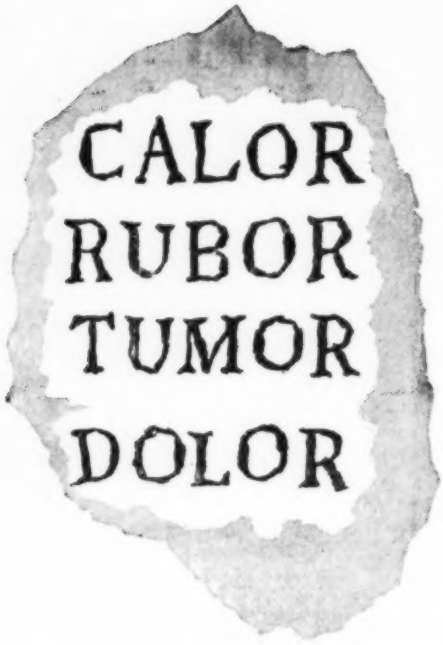

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References: 1. Zee, M. L.: Antibiotic Med. 1:661 (Dec.) 1955.
2. Andelman, M. B., and Nathan, L. A.: Antibiotic Med. 2:45 (Jan.) 1956.

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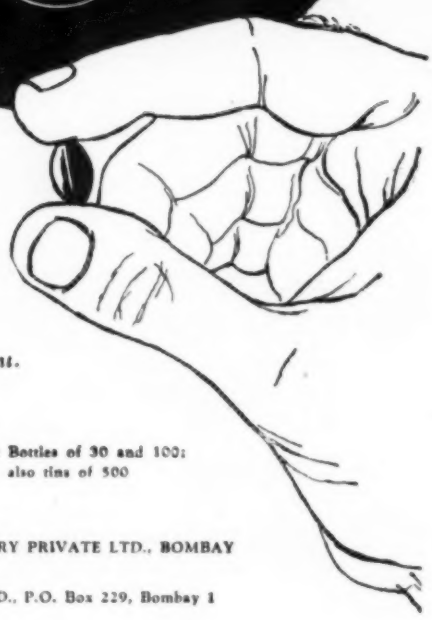

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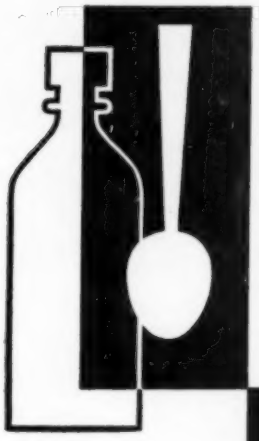

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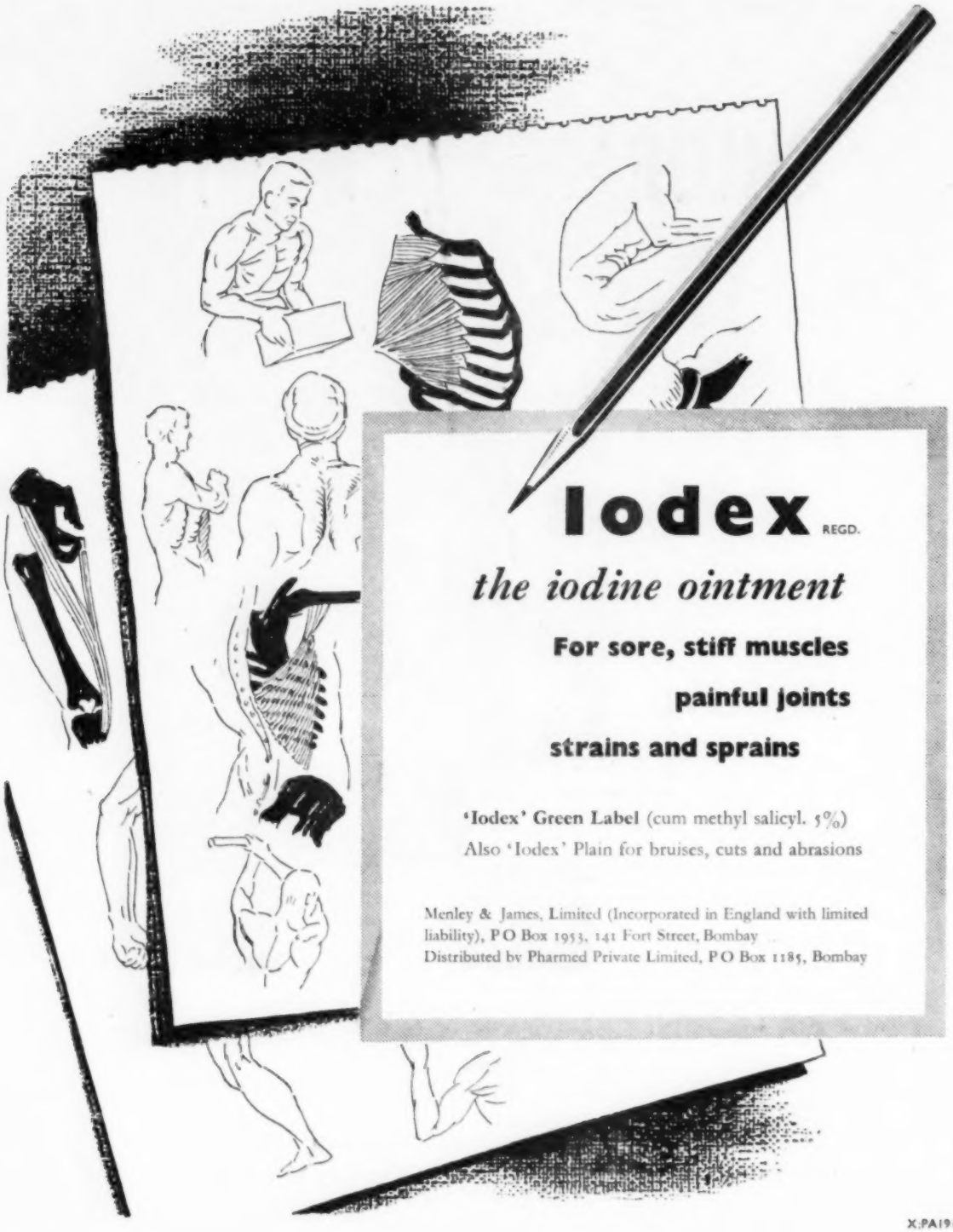
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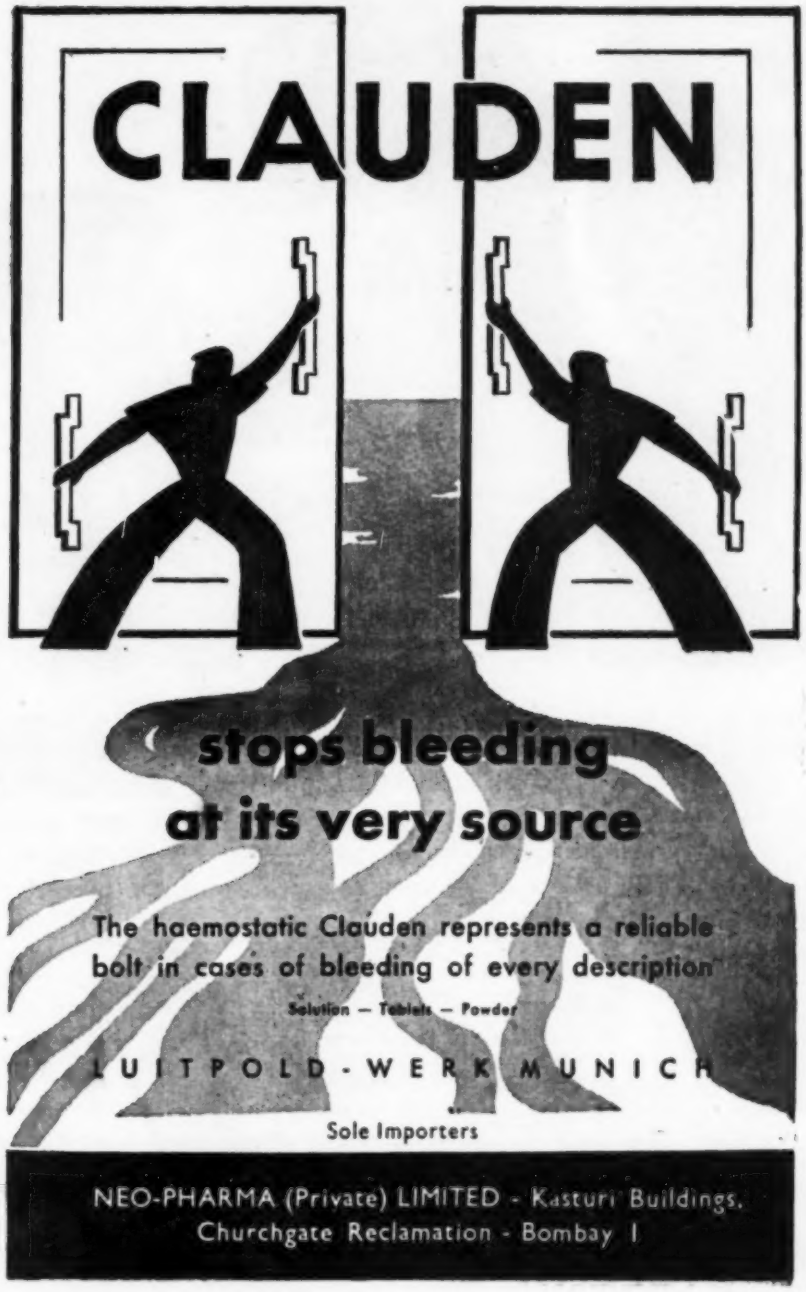
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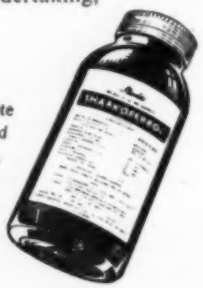

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SELECTED REFERENCES

The Control of Gastric Acidity
Brit. Med. J., 26th July, 1952, 2 : 180-182

Discussion on Peptic Ulceration
Proc. Roy. Soc. Med., May, 1953, 46 : 354

The Effect on Gastric Acidity of "Nulacin" Tablets
Med. J. Aust., 28th November, 1953, 2 : 823-824

Further Studies on the Reduction of Gastric Acidity
Brit. Med. J., 23rd January, 1954, 1 : 183-184

Clinical Investigation into the Action of Antacids
The Practitioner, July, 1954, 173 : 46

Ambulatory Continuous Drip Method in the Treatment of Peptic Ulcer—
Amer. J. Dig. Dis., March, 1955, 22 : 67-71

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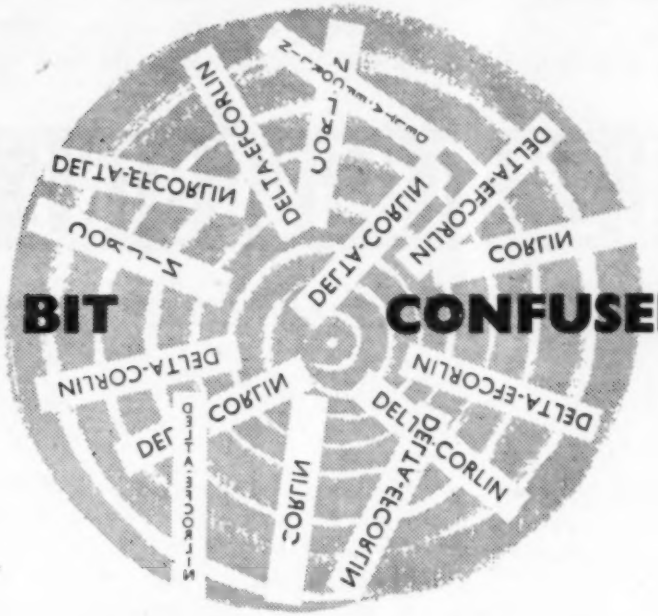

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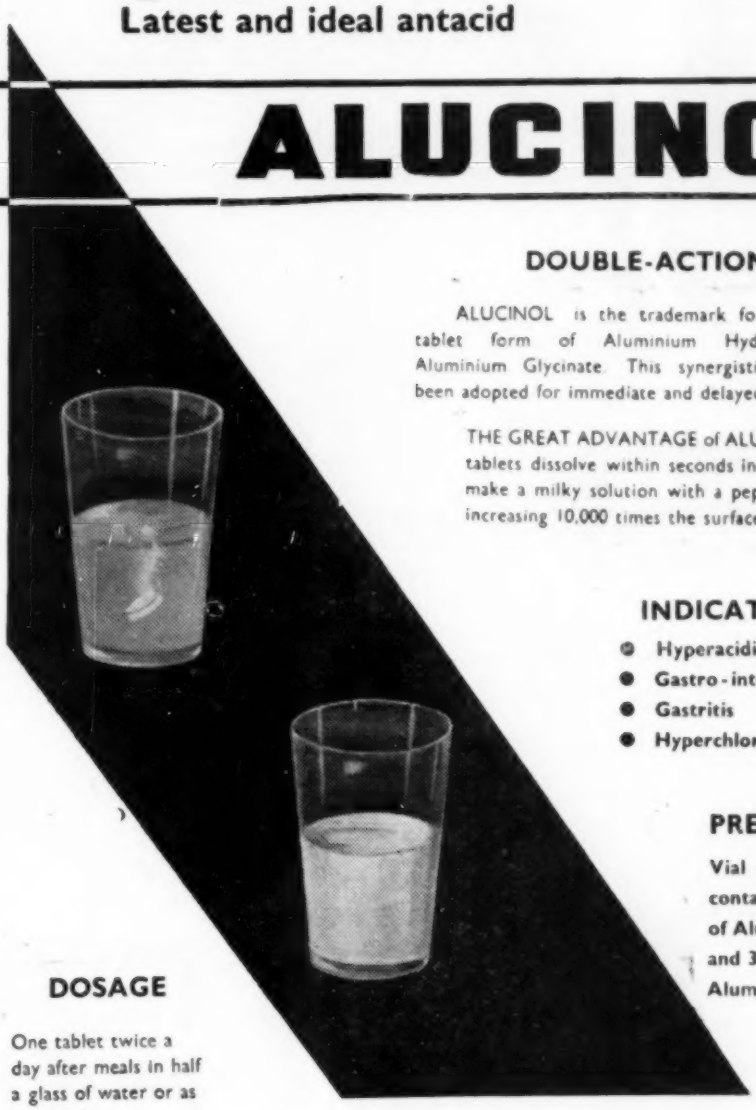

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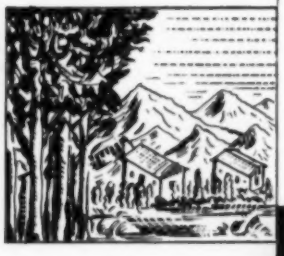

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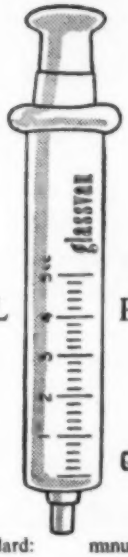

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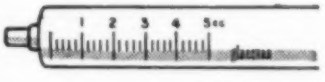

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ORIGINAL ARTICLE

STUDIES ON PORTAL HYPERTENSION*

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INTRODUCTION

The pathogenesis, clinical features and the management of cases of portal hypertension have aroused widespread interest. Recent advances in radiological and biochemical methods of investigation have brought to light some important aspects of this problem. The clinician can at present obtain a fairly accurate idea of the anatomical or even the pathological abnormalities that are present in a particular case even prior to operation. The behaviour pattern of many cases can be predicted with or without operation with reasonable certainty. However, in some areas, the syndrome still remains obscure.

MATERIAL AND METHODS

In the course of the last 8 years, we have had the opportunity of looking after and operating on over 60 cases of portal hypertension of greater or lesser degrees. 34 of these cases have been investigated in great detail and operated on at the S. S. K. M. Hospital during the last 2½ years and these mainly form the basis of this study. A record of our earlier cases has been published elsewhere (Basu *et al*, 1957). Many new and interesting facts have come to our notice during the course of this investigation and new knowledge has been gained.

In addition to careful scrutiny of their past history particularly with regard to protozoal infections, jaundice, haematemesis, ascites, etc., and their response to treatment and also examination of their physical state, special investigations were carried out on the following lines: (1) Haematological—examination of the peripheral blood and bone marrow study. (2) Biochemical—examination of plasma proteins and liver function tests. (3) Radiological—oesophagogram and splenoportal venogram.

Opportunity was taken at the time of operation to investigate the following:

(*a*) Estimation of the portal venous pressure.

(*b*) Macroscopic appearances of the spleen, liver and of the portal venous system including presence of collateral venous channels.

(*c*) Examination of biopsy material from the liver, taken at operation.

Cases have been followed up and clinically evaluated and further haematological and radiological investigations have been carried out during the follow-up period. Detailed liver function tests have been performed. The histology of the liver has been studied by repeated liver biopsy.

* Paper presented at the 19th Annual Conference of the Association of Surgeons of India, Nagpur, December 1957.

Results

The important data brought out during the course of this study are presented under different categories as under:

(A) Observations made before operation.
(B) Observations made at operation.

A. Observations made before operation:

These have been analysed and details of the analysis presented in Table 1.

Table 1—Showing Analysis of Observations before Operation and Evaluation of Portal Hypertension

Findings		No. of cases
Clinical:		
Prominent parietal veins		5
Haemorrhage		19
With extrahepatic obstruction	12	
With intrahepatic obstruction	7	
Ascites		7
With intrahepatic obstruction	6	
With extrahepatic obstruction	nil	
With combined intra- and extra-hepatic obstruction	1	
Radiological:		
Oesophageal varix		13
Splenoportal venography		32
Pattern of chronic splenomegaly without portal hypertension	1	
Pattern of chronic splenomegaly with portal hypertension	11	
Pattern of extrahepatic obstruction	12	
Pattern of intrahepatic obstruction ("withered tree")	6	
Pattern of suprahepatic obstruction	2	
Biochemical:		
Liver function tests		
Normal (all were cases of extrahepatic obstruction)		9
Abnormal (21 cases were of intrahepatic obstruction and 2 cases were of extrahepatic obstruction)		23
Moderate damage	9	
Severe damage	14	

B. Observations made at operation:

These have been analysed and details of the analysis presented in Table 2.

Table 2—Showing Analysis of the Observations Made at Operation under Different Heads

Findings		No. of cases
1. Measurement of venous pressure as measured at operation:		
Venous pressure in mm. of saline		
200—300		10
301—400		11
401—500		4
Above 500		1
Not measured		5
Relation of portal hypertension and haemorrhagic episodes:		
5 cases with venous pressure less than 300 mm. saline bled		
6 cases with venous pressure over 300 did not bleed		
5 cases with venous pressure over 400 did not bleed		
2. Macroscopic appearance of the liver at operation:		
Normal (all were cases of extrahepatic obstruction)		9
Abnormal (all were cases of intrahepatic obstruction)		19
Surface finely granuar	6	
Contracted and hobnail type	6	
With vascular nodules	7	
3. Histological picture of the biopsy materials from the liver and spleen:		
A. Liver		
Normal (all were cases of extrahepatic obstruction		7
Abnormal		32
Postnecrotic cirrhosis	16	
Diffuse hepatic fibrosis	4	
Postnecrotic scarring	2	
Protein malnutrition	2	
Fatty liver	5	
R.E. hyperplasia	3	
B. Spleen		
Fibrocongestive splenomegaly		26

Types of block causing portal hypertension—These are given in the Table 3.

TABLE 3—SHOWING TYPES OF BLOCK CAUSING PORTAL HYPERTENSION

Type of block		No. of cases
1. Extrahepatic obstruction		12
Pancreatic tumour	2	
Pancreatitis with fibrosis	4	
Portal vein thrombosis	2	
Cavernomatous transformation of vein	4	
2. Intrahepatic obstruction		18
3. Combined intra- and extra-hepatic obstruction		2
Cirrhosis plus hyperplastic nodule ...	1	
Cirrhosis plus portal vein thrombosis	1	
4. Suprahepatic obstruction		2
Polycythaemia vera	1	
Constrictive pericarditis	1	

Types of operation performed—Splenectomy alone was done in 17 cases. Splenectomy with splenorenal shunt in 11 cases, porta caval shunt in 1, ligation of hepatic and splenic artery in 3 and ligation of splenic artery alone in 1 case. Shunt was tried but was abandoned due to technical difficulty or due to the low condition of the patient in 6 cases.

Overall follow-up of cases—26 cases have been followed up for periods varying from 6 months to 4 years. Clinically 21 cases are doing well, 3 cases had recurrence of haemorrhage and 2 cases have developed ascites.

Repeated haematology studies were done in 18 cases. 16 showed improvement as compared to pre-operative status. Out of 18 cases in which repeated liver function studies were done 14 cases showed improvement as compared to pre-operative status. Repeated liver biopsy studies were done in 12 cases out of which 6 cases showed improvement.

Results of extrahepatic obstruction cases and of shunt operations—Out of 12 cases of extrahepatic obstruction 10 were operated on. 2 cases died before operation due to severe haemorrhage. 2 cases died after operation. 1 case of portal vein thrombosis died 7 days after operation and 1 case of pancreatic tumour died 4 days after operation. The remaining 8 cases are doing well.

Splenorenal shunt was performed in 11 cases. The mortality was nil. Recurrence of haemorrhage occurred in 2 cases. 9 cases are doing well (6 months to 4 years).

Porta caval shunt done in 1 case is doing well (10 months).

Results of splenectomy for haemorrhage cases—Splenectomy was done in four cases. All are doing well. In 3 of them, shunt was tried but was abandoned.

DISCUSSION

It would be seen that next to intrahepatic obstruction due to cirrhosis of liver, the infrahepatic obstruction cases form the second largest group in our series (Table 3). The importance of this mode of obstruction in the pathogenesis of portal hypertension has been realised in recent years (Das and Basu, 1956). It is fortunate that surgical treatment in this group can in many cases be curative. This is in contrast to intrahepatic or even suprahepatic obstruction, where treatment at best is at most palliative and helps in prevention of haemorrhage. Of the 10 cases in our group who were operated on, 8 are doing well, are free from haemorrhage and doing full time work. In 3 of these cases, the follow-up period has exceeded 4 years.

The causes of infrahepatic obstruction of the portal venous system may be of different types. We were fortunate to meet with nearly all these possible types. The largest number (4 cases) were due to the splenic vein being enveloped by fibrosis associated with chronic fibrosing pancreatitis. 3 of these cases were observed at operation and in the 4th case who unfortunately succumbed to a severe episode of haemorrhage prior to operation, we were able to do an autopsy study and demonstrated the obstruction by passing a fine tube in the splenic vein which got obstructed at the site of fibrosis and radio-opaque dye introduced through this tube did not pass beyond this site (Fig. 1, *vide* Plate).

We had two cases of splenic vein obstruction due to tumour of the pancreas. In one case, it was possible to do a partial pancreatectomy together with splenectomy and ligation and division of the large tortuous veins draining towards the fundus of the stomach. The venogram (Fig. 2, *vide* Plate) of the patient was highly interesting.

There were two cases of portal vein thrombosis producing hypertension. Both were confirmed at operation. One case was associated with advanced cirrhosis of liver. This case died 7 days after operation due to progressive hepatic failure and dissection of the autopsy material demonstrated a large linear firm thrombus extending from the trunk of the portal vein and occluding the left branch nearly completely. This also explained the marked atrophy of the left lobe in this case.

We have had at least 4 cases of cavernomatous transformation of the portal vein. Instead of the normal large portal vein, there are multiple tor-

tuous tributaries of smaller calibre enveloping the right border of the lesser omentum (Fig. 3, *vide* Plate). We were able to demonstrate 3 of these cases by venography and confirmed the abnormal anatomy at operation.

Another was however not shown by venography but was observed during the attempt to do a porta caval shunt. Small cavernomatous tributaries were observed anterior to the common bile duct and the portal vein was absent from its usual place posteriorly. It is to be expected that the liver is likely to be normal in all cases of extrahepatic obstruction group. This was exemplified in our series both on macroscopic appearance at operation and also on histology.

The intrahepatic obstruction group in our series was all due to cirrhosis of the liver. It is conceivable that obstruction to the portal venous stream within the liver may also be produced by other pathological conditions such as tumours, cysts or abscesses, but these instances must be extremely uncommon. The common histological type of cirrhosis met with, was postnecrotic cirrhosis with nodular hyperplasia. This type of histology was also evident in the macroscopic appearance of large relatively soft dark looking bosses on the surface of the liver often seen at operation.

We have had 2 cases in which intra- and extrahepatic obstruction were both responsible for portal hypertension (Table 3). One was due to a large hyperplastic liver regeneration nodule of the type just described and in the other, portal vein thrombosis was apparently secondary to advanced cirrhosis of the liver.

The syndrome of suprahepatic obstruction or obstruction to the outflow of the portal venous blood from the liver has only recently been described. The so-called Budd-Chiari syndrome in which there is thrombosis of the minute hepatic venous tributaries before they join the inferior vena cava is an example of this syndrome. This type of obstruction causes severe degrees of portal hypertension, sometimes combined with ascites in later stages. There were 2 cases in our series in which we decided that this particular type of obstruction was the responsible factor for portal hypertension (Table 3). One was a case of polycythaemia vera, who demonstrated the pattern of venogram which we have associated with suprahepatic obstruction and in which the histology of the liver biopsy material showed evidences of hepatic venous tributary occlusion. The other was a confirmed case of constrictive pericarditis who also had the typical venographic patterns and in whom pericardectomy relieved the portal hypertension. It would be well to realise that this type of obstruction though relatively rare can be diagnosed fairly accurately by careful venographic or histologic studies prior to exploration. It should also be remembered that in the later stages of this type, the liver may develop advanced secondary cirrhotic features and then the syndrome would be indistinguishable from the intrahepatic obstruction group.

We tried to ascertain the relative values of the different methods of investigation—clinical, biochemical and radiological in the pre-operative evaluation of the presence, the degree and the type of portal hypertension. From the data available, it would seem that each of these methods of investigation is of importance but perhaps the most important is the study of the living circulatory anatomy by splenoportal venography. The important points in the clinical signs and symptoms as brought out in our series are as follows:

(1) The visual evidence of prominent parietal veins is a late and therefore uncommon sign of portal hypertension. It was present in only 5 of our cases (Table 1).

(2) Haemorrhage is a more common feature of extrahepatic obstruction group than in intrahepatic obstruction (Table 1). It is also more severe and therefore sometimes fatal in the former group. All our cases of extrahepatic obstruction had history of severe and repeated haematemesis and 2 cases were fatal before operation. On the other hand, only 7 of the 18 intrahepatic obstruction group had history of lesser degrees of haemorrhage.

(3) As opposed to this, ascites seldom occurs in extrahepatic obstruction whereas it was present in 6 cases of our intrahepatic obstruction group (Table 1).

The biochemical tests for liver function are individually well known for their incompleteness. One has to rely on a battery of tests to obtain an overall picture of liver function. In addition to the usual tests, we performed a careful electrophoretic study of the globulin ractions of the serum and this, we believe, gives a good idea of the state of liver function. When the total serum protein was less than 5 g. per cent and the serum albumin less than 2·5 g. per cent, when there was reversal of albumin and globulin ratio and when particularly serum electrophoresis showed hyperglobulinaemic peak in the globulin fraction, we considered the liver function to be markedly deranged. On this basis, we considered that in 23 of our cases, the liver was functionally moderately to severely damaged. It would be seen that these were all cases of the intrahepatic obstruction group

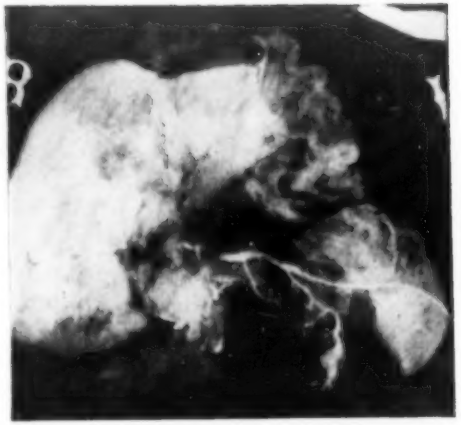

Fig. 1—Liver, spleen and pancreas showing obstruction of the splenic vein by pancreatic fibrosis.

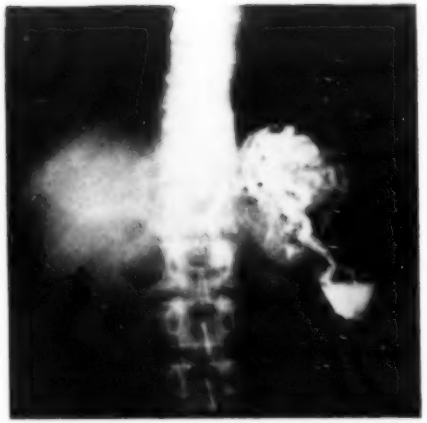

Fig. 2—Splenoportal venogram showing obstruction of the splenic vein by tumour of the pancreas and numerous collaterals directed to the fundus of the stomach.

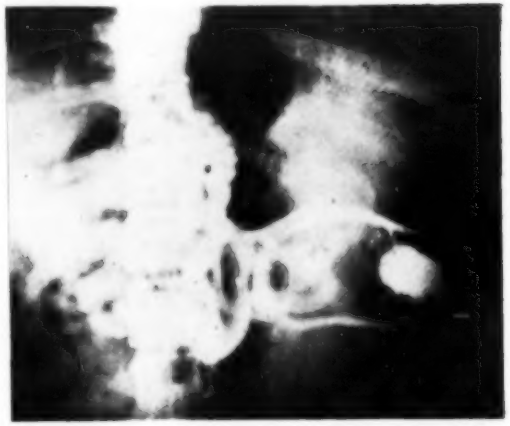

Fig. 3—Splenoportal venogram showing cavernomatous transformation of portal vein.

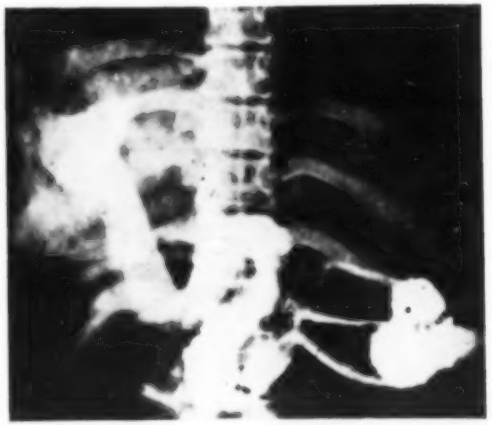

Fig. 4—Pattern of splenoportal venography in chronic splenomegaly without portal hypertension.

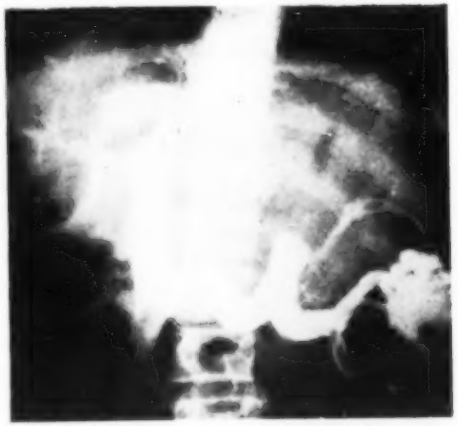

Fig. 5—Pattern of splenoportal venography in chronic splenomegaly with cirrhosis of liver and portal hypertension. Collaterals shown.

Fig. 6—Pattern of chronic splenomegaly with infrahepatic obstruction of the splenic and portal vein with collaterals.

Fig. 7—Pattern of splenoportal venography in cirrhosis of liver without splenomegaly. "Withered tree" appearance of the intrahepatic radicles. Collaterals are numerous.

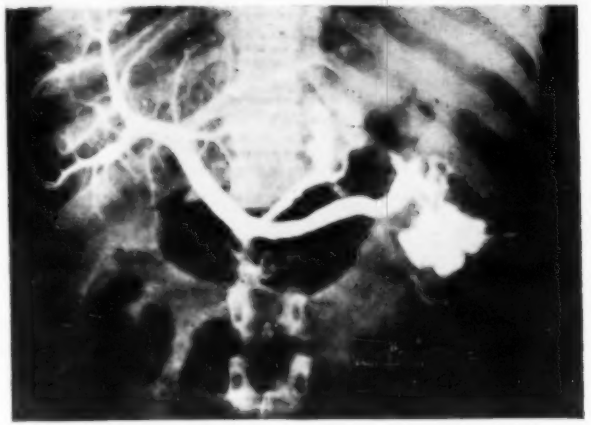

Fig. 8—Pattern of splenoportal venography in suprahepatic obstruction. Splenic and portal veins are not dilated. Collaterals are marked.

BASU—*Studies on Portal Hypertension (p. 81)*

Fig. 1—An elongated pear-shaped shadow in the subhepatic region and a smaller oval shadow medial to it.

Fig. 2—The pear-shaped shadow has assumed a vertical position and corresponds in shape and position to the gall bladder.

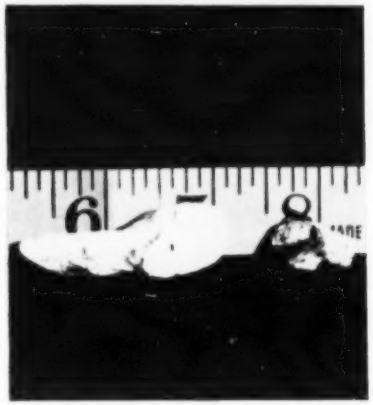

Fig. 3—The large stone which almost filled up the gall bladder along with the stone in the cystic duct after removal.

Fig. 4—The small intestine with pedunculated or sessile groups of multilocular cysts arising either from the mesenteric or antimesenteric border.

RAO—*Cholelithiasis with Cystic Pneumatosis (p. 103)*

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and that in extrahepatic obstruction, liver function, as is to be expected, remains relatively normal.

The importance and value of splenoportal venography in the diagnosis and elucidation of portal hypertension has been described by us in detail elsewhere (Basu and Das, 1956).

We would therefore only point out and emphasise that this method of investigation is simple, relatively free from risk and gives significant information with regard to the type and the site of obstruction and the anatomical abnormality of the vascular pattern is well delineated (Table 1). With some experience in the study of the relevant venography patterns, even the nature of the obstructive agent can be predicted with fair degree of accuracy. We have described 5 distinct venographic patterns which it would be worthwhile to recapitulate here.

(1) Pattern in chronic splenomegaly without portal hypertension—dilated tortuous splenic and portal vein without collaterals. Intrahepatic radicles faint (Fig. 4, *vide* Plate).

(2) Pattern in chronic splenomegaly with cirrhosis of liver and portal hypertension—same as above but with collaterals (Fig. 5, *vide* Plate).

(3) Pattern of infrahepatic obstruction—obstruction in the course of the splenic or portal vein with collaterals (Fig. 6, *vide* Plate).

(4) Pattern in intrahepatic obstruction (cirrhosis of liver)—splenic and portal vein not dilated or tortuous ; collaterals present ; intrahepatic radicles distorted and truncated. 'Withered tree' appearance. Collaterals prominent (Fig. 7, *vide* Plate).

(5) Pattern in suprahepatic obstruction—splenic vein and portal vein not dilated but collaterals present. Intrahepatic radicles well seen right up to periphery (Fig. 8, *vide* Plate).

In our experience, demonstration of collaterals in splenoportal venography is an accurate guide to the presence as well as to the degree of portal hypertension and is seen earlier than other indications such as haematemesis, ascites or deranged liver function states.

We also believe that splenoportal venography is of great help to the surgeon in the planning of the requisite operation.

As a routine measure, we measured the portal venous pressure at operation by a saline manometer. In many cases, the intrasplenic pressure was measured in addition. In the majority of our cases, the range of pressure varied between 200 and 400 mm. saline. There were 4 cases with pressures above 400 mm. and 1 case above 500 mm. (Table 2).

It appeared from a study of our cases that there was no definite relation between the incidence of haemorrhage and the degree of portal hypertension. 5 cases of less than 300 mm. saline pressure had severe haemorrhage whereas 6 cases above 300 mm. and 2 cases above 400 mm. pressure did not bleed. It appears therefore that the incidence of haemorrhage in portal hypertension depends more on the anatomical distribution of the abnormal collaterals that are formed as the result of the varied site of obstruction rather than on the absolute measure of the portal venous pressure.

The plan of our operative management was decided upon as follows. Most of our cases had very large spleens with evidences of advanced hypersplenism. Splenectomy therefore was considered essential in almost all of the cases. In addition, we decided to do a shunt operation specifically in those cases where there was history of significant haemorrhage.

The specific role of splenectomy alone in the management of portal hypertension has been debated and it has been stated that the surgeon, who in cases of portal hypertension is doing a splenectomy alone and not combining it with a shunt procedure, is not doing the best possible thing for his patient. That is probably true in the type of cases where large splenomegaly is not the most important factor and where there are evidences of repeated haemorrhages. In our country, we come across a large number of cases where chronic splenomegaly is associated with secondary hepatic fibrosis and where instead of repeated haemorrhages, clinical evidences of hypersplenism is the most important factor. The evidence of portal hypertension in such cases is the enhanced portal tension as measured at operation. In such types of cases, we have contented ourselves with doing splenectomy alone and have been carefully following our cases with repeated haematological, liver function and liver biopsy studies. Uptil now, only one such post-splenectomy case has come back with haemorrhage. The value of splenectomy in this group of cases lies in the cutting off of the large volume of splenic effluent and therefore of the large portal hypervolaemia and along with this, the factor of hypersplenism is done away with. We have made some efforts in the volumetric determination of the actual amount of splenic effluent in these cases by the Evans blue dye method. Our preliminary

studies show that in large splenomegalies, this amount at least exceeds 600 c.c. per minute.

For many cases of extrahepatic obstruction, splenectomy with ligation and division of abnormal collateral vessels is all that is necessary and is curative.

Where history of haemorrhage is significant, a shunt procedure is imperative and we have performed this on 12 occasions—11 splenorenal and 1 porta caval. In addition, in 6 cases (5 splenorenal and 1 porta caval) the shunt procedure was attempted but had to be abandoned either due to anatomical abnormality of veins (as in the porta caval) or due to the low condition of the patient. We maintain that although porta caval shunt is a technically easier procedure, splenorenal shunt with splenectomy is the operation of choice in the type of cases we meet with. We would reserve porta caval procedure for the type of cases where splenomegaly is not significant but where there are history of repeated haemorrhages and also for the post-splenectomy or for the post-splenorenal shunt bleeder. Our porta caval shunt was done for this second type of case.

The operative approach either to the shunt operation or even to splenectomy in the large splenomegalies is now a standardised procedure in our hands. There is no question that abdominothoracic approach combined with division of the diaphragm gives incomparably better exposure and ensures division of the large adhesions containing tortuous vascular channels either with the undersurface of the diaphragm or within the posterior layer of the lienorenal ligament with precision and deliberation. Since we started using this approach regularly about 4 years ago, we have never had cause to regret it.

In addition to regular clinical check-up, we have been doing repeated haematological, liver function and liver biopsy studies of our cases—at 3 or 4 monthly intervals. This study is continuing and we hope in future to be able to present a long-term review of the state of liver function and of liver pathology of these cases in addition to their haematological and clinical status. However, from a review of our follow-up material, it is even now clear that in the large majority of our cases, the operation has been well worthwhile. Of the total of 26 cases followed up from 6 months to 4 years, 21 cases are clinically doing well, only 3 have had recurrence of haemorrhage and 2 have developed ascites. Liver function and liver biopsy studies show improvement in good proportion. The haematological status has markedly improved indicating elimination of the factor of hypersplenism. We have been trying to analyse the effect of splenectomy on the histology of the liver in those cases where cirrhosis was already observed at operation. It is yet early to state our opinion categorically but we have been impressed by positive functional as well as structural improvement in at least some of our cases indicating the reversibility of the fibrotic process in the liver and the injurious influence of the enlarged spleen on the liver parenchyma.

In extrahepatic obstruction, as is to be expected, the results of operations are even better. Except for the 2 postoperative deaths, all the remaining 8 are doing well and to all appearances are cured. Of 11 splenorenal shunts, there has been recurrence of haemorrhage in 2 cases. The other 9 cases are doing well and are free from haemorrhage. In 2 cases, the follow up period has exceeded 3½ years.

A few significant observations made as the result of the study may be summarised :

(1) Haemorrhagic episodes are more common with extrahepatic than with intrahepatic obstruction. Whereas ascites seldom occurs with extrahepatic obstruction.

(2) The most important diagnostic agent is splenoportal venography which is simple, relatively free from risk and gives significant information with regard to the site, and also sometimes the nature of the obstructive agent.

(3) Electrophoretic study of serum proteins and protein fractions are the best guide to the state of liver function.

(4) There is no definite relation between portal hypertension and the incidence of haemorrhagic manifestations.

(5) In the pathogenesis of portal hypertension, the most common obstructive agent is intrahepatic obstruction due to cirrhosis of liver. However, infrahepatic obstruction due to different causes comes a close second. Suprahepatic obstruction though rare is sometimes responsible.

(6) For cases associated with repeated haemorrhage, splenectomy associated with splenorenal shunt is the operation of choice in the types of cases we meet with. Porta caval shunt is indicated where splenomegaly and hypersplenism is not significant or for the postsplenectomy or the post-splenorenal bleeder. Simple splenectomy is indicated where haemorrhagic episodes are absent.

(7) The effect of splenectomy in relation to the hepatic function and structure and the general nutritional and the haemopoietic status of the patient is being studied by a careful follow up programme. There is evidence to show that in many cases there is reversal of the fibrotic process in

the liver and sustained improvement of liver function after this operation.

(8) Infrahepatic obstruction cases are markedly benefited and can be considered as cured by the operation.

Summary

This study presents a detailed review of cases of portal hypertension dealt with during the last 2½ years. Earlier cases already reported on have been omitted from the study except for general observations.

The review includes careful evaluation of the methods of diagnosis and the importance of the various diagnostic agents. A study is made of the relation of portal hypertension with the haemorrhagic manifestations. The role of different types of obstructions and the nature of the obstructive factors in the pathogenesis of portal hypertension are clearly brought out. The indications of the different types of operations and the results of such operations are discussed.

References

Basu, A. K., Das, A. and Aikat, B. K.—*J. Indian M. A.*, **28** : 380, 1957.

Basu, A. K. and Das, A.—*Brit. M. J.*, **2** : 916, 1956.

Das, A. and Basu, A. K.—*Ibid*, **1** : 325, 1956.

PUBLIC HEALTH

SOME SOCIAL AND EPIDEMIOLOGICAL ASPECTS OF SMALLPOX IN WEST BENGAL INCLUDING CALCUTTA—THE PROBLEMS OF ITS CONTROL AND ERADICATION

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Introduction

In reviewing the position of smallpox in 1957 in West Bengal, it appears that there have been 18,612 attacks and 10,095 deaths (including Calcutta 3,054 attacks and 2,056 deaths). The morbidity and mortality rates work out at 0·6 and 0·4 per mille respectively for the whole state whereas for the Calcutta Municipal area, the rates are 1·1 and 0·7 per mille respectively (Tables 1 and 2).

Table 1—Showing (a) Incidence and Case Fatality Rate from Smallpox Occurring in West Bengal including Calcutta

Year	Attack rate per mille	Death rate per mille	Case fatality rate expressed as percentage to total attacks
1947	0·3	0·1	48·6
1948	0·7	0·4	54·6
1949	0·1	0·06	45·5
1950	1·1	0·6	53·9
1951	2·1	1·1	52·1
1952	0·3	0·1	38·7
1953	0·04	0·02	47·2
1954	0·09	0·03	36·9
1955	0·04	0·02	44·6
1956	0·1	0·04	43·2
1957*	0·6	0·4	54·2
1958* (up to 31-10-58) ...	0·9	0·4	40·9
Annual average ...	0·53	0·27	49·42

(b) Annual Average of the above Table (Cyclewise)

Year	Attack rate per mille	Death rate per mille	Case fatality rate expressed as percentage to total attacks
1947-52	0·78	0·39	51·25
1953-58 ... ... (up to 31-10-58)*	0·29	0·15	45·71

(c) Annual Average Numbers of Attacks and Deaths (Cyclewise)

Year	Total number of attacks	Total number of deaths
1947-52	17,890	9,170
1953-58 up to 31-10-58* ...	8,855·5	4,047·7

* Provisional.

Distribution—The distribution by different categories is as under :

By geography : All the districts were affected of which the worst affected have been Howrah,

Calcutta, Murshidabad, Malda, 24-Parganas, Hooghly and West Dinajpur (Fig. 1 and Table 2).

The urban areas suffered more than the rural, the mortality rate in the former being 0·8 per mille and in the latter 0·2 per mille (Table 2).

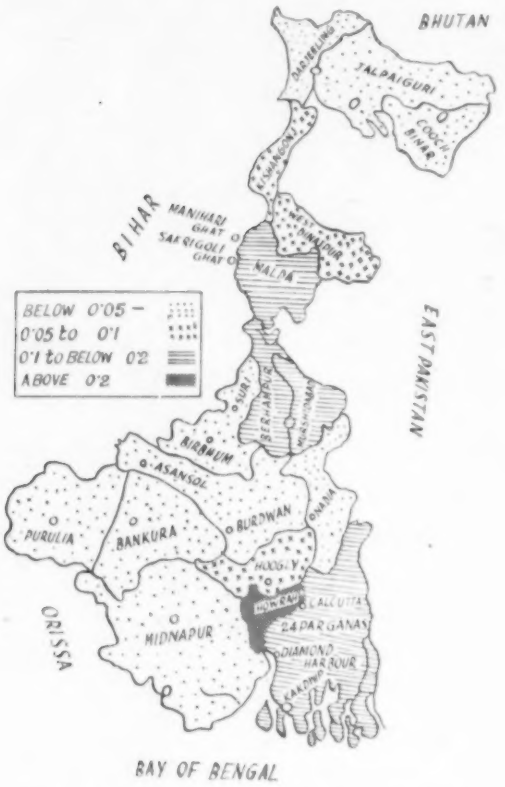

FIG. 1—A SKETCH MAP OF WEST BENGAL SHOWING THE AVERAGE ANNUAL MORTALITY FROM SMALLPOX DURING 1953-57.

BY SEASON: It started rising by the end of the previous year, i.e., 1956, reached its peak in March 1957 and then declined, smouldering for the rest of the year.

BY SEXES: The females suffered as usual more than the males, the mortality rate being 0·4 per mille for females against 0·3 per mille for males (Table 3).

BY AGES: Of the total deaths from smallpox (viz., 10,095 or 0·4 per mille of the total population), 3·7 per cent have occurred within 1 year of age, 16·1 per cent have occurred between 1 to below 10 years of age and the rest, that is, about 80 per cent amongst persons aged 10 years and above (Table 4).

TABLE 2—SHOWING (a) DISTRICTWISE SMALLPOX MORTALITY AND MORTALITY IN WEST BENGAL INCLUDING CALCUTTA DURING THE YEAR 1957*

District	Rate per mille of the population	
	Attacks	Deaths
1. Burdwan ...	0·36	0·1
2. Birbhum ...	0·21	0·07
3. Bankura ...	0·28	0·09
4. Midnapore ...	0·25	0·1
5. Hooghly ...	0·80	0·38
6. Howrah ...	1·78	1·36
7. 24-Parganas ...	0·76	0·44
8. Calcutta ...	1·06	0·71
9. Nadia ...	0·09	0·1
10. Murshidabad ...	1·42	0·73
11. West Dinajpur ...	0·69	0·09
12. Jalpaiguri ...	0·05	0·01
13. Darjeeling ...	0·02	0·004
14. Malda ...	1·23	0·35
15. Cooch Behar ...	0·04	0·004
16. Purulia ...	0·03	0·008
Whole State ...	0·6	0·4

(b) DISTRIBUTION OF MORTALITY FROM SMALLPOX IN URBAN AND RURAL AREAS OF WEST BENGAL INCLUDING CALCUTTA AND THE CORRESPONDING DENSITY OF POPULATION IN 1951 AND 1957

Year	Death rate per mille		Density of population per sq. mile	
	Urban	Rural	Urban	Rural
1951 ...	1·9	0·9	13,632	610
*1957 ...	0·8	0·2	16,065	653

* Provisional.

TABLE 3—SHOWING (a) SMALLPOX MORTALITY BY SEXES OCCURRING IN WEST BENGAL INCLUDING CALCUTTA

Year	Death rate per mille	
	Male	Female
1947	0·1	0·2
1948	0·3	0·4
1949	0·05	0·06
1950	0·5	0·6
1951	1·0	1·2
1952	0·1	0·2
1953	0·02	0·02
1954	0·03	0·04
1955	0·02	0·02
1956	0·04	0·05
1957*	0·3	0·4
Annual average ...	0·22	0·29

* Provisional.

(b) Annual Average of the foregoing Table (Cyclewise)

Year	Death rate per mille	
	Male	Female
1947-52	0·34	0·44
1953-57*	0·08	0·1

(c) Average Annual Number of Deaths in Males and Females (Cyclewise)

Year	Total number of deaths amongst	
	Males	Females
1947-52 ...	4,511	4,659
1953-57* ...	1,306·6	1,322·4

* Provisional.

Table 4—Showing (a) Smallpox Mortality by Ages (shown as Percentage of Total Deaths) Occurring in West Bengal including Calcutta

Year	Percentage contributed by age groups		
	Below 1 year	1 to below 10 years	10 years and above
1947	12·7	39·2	48·1
1948	12·8	41·2	46
1949	8·2	27·1	64·7
1950	8·9	38·0	53·1
1951	8·4	21·6	70·1
1952	7·2	22·4	70·4
1953	13	41	46
1954	8·8	33	58·1
1955	9	36	55
1956	4·4	19·2	77·4
1957*	3·7	16·1	80·2
Annual average ...	8·44	27·32	64·24

(b) Annual Average Number of Deaths in Different Age Groups (Cyclewise)

Year	Total No. of deaths in age groups		
	Below 1 year	1 to below 10 years	10 years and above
1947-52 ...	856·16	2,683·84	5,630
1953-57* ...	122·8	503·6	2,002·6

* Provisional.

by social classes: The middle and the lower economic groups of the population contributed more than the rest.

The overall pasition in 1957 has been much worse than what it was in 1956. There has been a sharp increase both in morbidity and mortality rates. The former has increased from 0·1 per mille in 1956 to 0·6 per mille in 1957, whereas the latter from 0·04 per mille in 1956 to 0·4 per mille in 1957 (Table 1).

Causes

The causes leading to this sharp increase may be discussed under two heads, viz., (A) the factors that are of immediate and special importance and (B) the factors that are of general importance.

The factors of immediate and special importance—

(1) 1957-58 happens to be the peak period of the cyclical periodicity for smallpox to break out in epidemic form. It may be seen (Fig. 2 and Table 5) that the cyclical exacerbations of small-

Table 5—Showing Cyclical Smallpox Death Statistics of West Bengal including Calcutta from 1931 to 31st October, 1958

Year	Total deaths	Death rate per mille of total population
1931 ...	4,290	0·2
1932 ...	2,278	0·11
1933 ...	9,280	0·5
1934 ...	3,896	0·2
1935 ...	4,308	0·2
1936 ..	27,773	1·1
1937 ...	7,017	0·3
1938 ..	4,008	0·2
1939 ...	4,861	0·2
1940 ...	3,866	0·2
1941 ...	9,275	0·4
1942 ...	1,027	0·05
1943 ...	2,265	0·09
1944 ...	19,280	0·8
1945 ...	24,067	1·0
1946 .	4,971	0·2
1947 .	3,137	0·1
1948 ...	7,909	0·4
1949 ...	1,244	0·06
1950 ...	12,268	0·6
1951 ...	26,888	1·1
1952 ...	3,574	0·1
1953 ...	513	0·02
1954 ...	850	0·03
1955 ...	502	0·02
1956 ...	1,185	0·04
*1957 ..	10,095	0·4*
*1958 (up to 31-10-58) ...	11,141	0·4*

* Provisional.

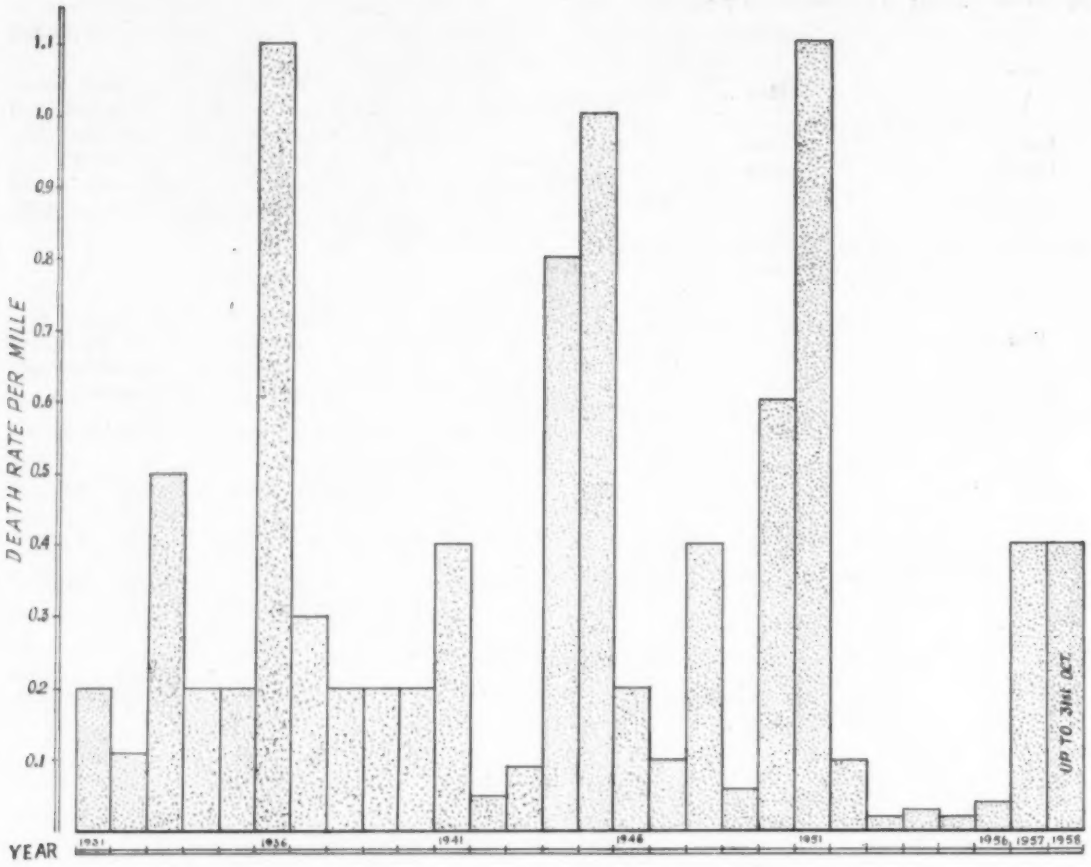

FIG. 2—SHOWING SMALLPOX DEATH STATISTICS OF THE WHOLE STATE OF WEST BENGAL.

pox have occurred regularly at 4-6 years intervals, the last preceding one occurring in 1950-51. Compared with the latter, however, the crest of the present outbreak appears much lower.

Further, comparing cyclewise between the current cycle and the preceding one ending 1951, it may be seen from Tables 1, 3 and 4 to 6 that considerable improvement has been effected towards the control of smallpox. There has been a considerable reduction in the average morbidity and mortality rates for all ages, in the mortality for the age group under ten years of age, in the mortality rates for both sexes particularly in the females; further, there has been a considerable increase in the number of primary and revaccinations performed each year.

(2) The epidemic outbreaks of smallpox and cholera have been raging for some long time past in our neighbouring and contiguous country, viz., East Pakistan which has with this State a border line by land of no less than 1000 miles. The intercourse between the masses of people of these two parts of artificially vivisected Bengal against her several century old economy is quite frequent for social, cultural and economic reasons.

The factors of general importance—

The principal ones amongst these may conveniently be discussed under the following subheads:

THE ENVIRONMENTS: The general sanitary conditions of West Bengal have been deteriorating as her density of population has been steadily increasing and which in 1957 stood at 833 per sq. mile. The said deterioration is yet to be arrested. It has not been possible to touch even the fringe of her stupendous housing problem. The intense overcrowding in the available dwelling places has created conditions very favourable to the spread of all infectious diseases, not to speak of the

dangerous airborne ones, e.g., smallpox. The preponderance of smallpox in the urban areas where the overcrowding is much more intense than in the rural, is worth noting in this connection (Table 2).

THE VIRULENCE OF THE VIRUS: The average case fatality rate for the period from 1947-56 works out at 50·6 per cent. There has been a slight increase in 1957, the figure being 54 per cent whereas a slight decrease occurred in 1958, the figure being 40·9 per cent (Table 1). Little improvement has been effected in the meanwhile so far as facilities for the treatment of smallpox are concerned. The variations in the case fatality rates from smallpox in 1957 and 1958 do not appear to be such as to suggest that the virus has undergone in these years any material change in its character (so fas as its virulence is concerned) sufficient to warrant the sharp increase in the mortality rate.

THE LEVEL OF IMMUNITY AND THE SUSCEPTIBLES: The virus not having materially changed its character in regard to its virulence the outbreak suggests a deterioration in the level of immunity in the population.

So far as artificial immunity is concerned, it may be seen from Table 6 that the artificial immunity conferred each year on an average during the period 1953-58 (viz. 12 lakhs of primary with 88 per cent successful, and 81 lakhs revaccinations with 36·3 per cent successful) is much higher in level than that achieved in the preceding period 1947-52 (being 8·5 lakhs primary with 79 per cent successful and 60 lakhs of revaccinations with 36 per cent successful). This has reflected very favourably on the average morbidity and mortality rates which have been reduced from 0·76 and 0·39 per mille a year on the average during the period 1947-52 to 0·29 and 0·15 per mille respectively in 1953-58 (Table 1). Obviously there has been considerable improvement in the current period as compared with the preceding one. But the fact remains that despite the above, there has been the periodic exacerbation. This means that the artificial immunity introduced in the society has not been sufficient for the prevention of the periodic exacerbation of smallpox in 1957-58 though it has succeeded in reducing its size as compared with that of the preceding period of 1947-52 as stated already.

The deterioration in the level of the immunity in the population is apparently attributable to the accumulation of susceptibles from within and outside the State of West Bengal.

The susceptibles from within the State comprise mainly of the newborn whose number is on an average about 6 lakhs a year according to recorded births. But the birth registration is defective to the extent of 50 per cent as found by sample survey. This raises the presumption that half of the total newborn escapes registration and so vaccination. But in this connection it may be pointed out that the sample survey was conducted as far back as 1948. Besides, house-to-house checking and vaccination are usually made to make up for the defective registration.

However the number of total births, even after making allowance of the 50 per cent omission, is estimated at about 12 lakhs a year. It may be seen from Table 6 that on an average each year about 12 lakhs of primary vaccinations have been performed during the period 1953-58 in this State and the percentage of death from smallpox in the age group under 10 years of age to the total deaths from smallpox for all ages, has been steadily declining from 54 per cent in 1953 to 19·8 in 1957. This shows that the treatment of this group of susceptibles has been improving more and more and therefore their contributions are becoming less and less towards the accumulation of susceptibles leading to such explosive outbreaks.

This suggests that the responsibility lies elsewhere, i.e., in the migrants who may broadly be classified in three groups, viz.:

(i) The displaced persons migrating into this State from foreign countries, e.g., Pakistan under political stress.

(ii) Foreigners of whom the most important are the Pakistani traders and others who frequently visit this State with or without permit across the 1000 miles of Indian frontier.

(iii) Traders, labourers, wage earners, etc. coming with or without their families (either for employment in the agricultural, industrial, plantation or mining areas of this State or for commercial and other purposes) from other States in the Indian Union.

The above migratory population taken together constitutes about 26 per cent of the total population of this State. The checking of this population, so far as vaccination and smallpox is concerned, while crossing the long and easy frontiers has not been practicable. When smallpox breaks out a very high percentage of unprotected persons are found amongst them.

An enquiry into all the 578 cases that were admitted into the city's hospitals between the period 1-1-58 and 31-10-58 revealed the distribution of the cases as 47·7 per cent amongst the indigenous and 52·6 per cent amongst the non-indigenous population, i.e., amongst people coming from outside this State. Further the proportion amongst them of persons of all ages having no marks of primary vaccination was 59 per cent, distribution

TABLE 6—SHOWING (a) VACCINATION AND REVACCINATION AGAINST SMALLPOX IN WEST BENGAL INCLUDING CALCUTTA

Year	No. of primary vaccinations performed	No. of revaccinations performed	No. of total vaccinations performed	Percentage of successful primary vaccinations	Percentage of successful revaccinations
1947	806,856	4,086,500	4,393,356	64·9	27·4
1948	800,336	5,592,893	6,393,229	79·6	25·9
1949	664,352	4,832,370	5,496,722	82·0	41·1
1950	313,432	6,312,480	7,125,932	83·4	44·8
1951	1,173,856	8,293,867	9,467,723	78·9	35·3
1952	829,291	6,702,899	7,532,190	83·6	40·9
1953	900,948	6,463,216	7,364,164	88·9	39·5
1954	1,098,859	7,554,064	8,652,923	85·6	27·3
1955	1,057,964	6,748,891	7,806,855	90·1	40·4
1956	1,109,128	7,794,701	8,903,829	85·7	38·2
1957*	1,609,030	11,094,204	12,704,134	87·8	35·1
1958 (up to 31-10-58)* ...	1,348,265	9,069,227	10,417,492	88·6	37·2
Annual average	1,017,772·2	7,045,442·5	8,063,214·7	83·21	36·09

(b) ANUUAL AVERAGE (CYCLEWISE)

Year	No. of primary vaccinations performed	No. of revaccinations performed	No. of total vaccinations performed	Percentage of successful primary vaccinations	Percentage of successful revaccinations
1947-52	848,028·8	5,970,168	6,818,196·8	78·73	35·9
1953-58*	1,187,515·6	8,120,717·2	9,308,232·8	87·7	36·28

* Provisional.

TABLE 7—SHOWING COMMUNITYWISE DISTRIBUTION OF CASES ADMITTED FOR SMALLPOX IN CALCUTTA HOSPITALS DURING THE PERIOD FROM 1-1-58 TO 31-10-58

Percentage to total No. of 578 cases admitted

	Admission	Death	Immunity status			
			Protected	Unprotected	Age analysis of the unprotected	
					Below 1 year of age	Above 10 years of age
Indigenous	47·41	9·69	26·82	20·58	8·48	12·10
Non-indigenous	52·59	14·35	14·02	38·58	5·19	33·39
Total	100	24·04	40·84	59·16	13·67	45·49

TABLE 8—SHOWING AN EXAMPLE OF DELAYED REPORTING OF SMALLPOX

Village	Population	Date of outbreak	Date of 1st information	Name of the reporting agency	Date of 1st attendance by health staff	Attacks	Deaths	Vaccinations performed		
								Pr.	Re.	Total
A	1,286	15-10-57	12-12-57	President of the Local Union Board	12-12-57	16	10	159	1,003	1,162

Pr. = Primary vaccination. Re. = Revaccination.

communitywise being indigenous 20·6 per cent and non-indigenous 38·6 per cent (Table 7).

In this connection it may be seen from Table 4 that the percentage of deaths from smallpox in the group aged 10 years and above has been steadily increasing all these years though the average number of total deaths from smallpox has been considerably reduced in the said age group as well as for all ages. The average annual deaths for all ages and for the age groups 10 years and above were 9,170 and 5,630 during 1947-52. The corresponding figures for 1953-57 were respectively 2,629 and 2,003.

This suggests the existence of a very high proportion of unprotected persons still amongst the adults, young or old. This State for the last 6 years is performing each year on an average 12 lakhs primary vaccinations with 88 per cent successful and 81 lakhs revaccinations with 36·3 per cent successful. The cumulative number of these vaccinations and revaccinations performed amounts to a figure which is more than twice the total population of this State.

Further, in the said enquiry it was also found that persons aged below 10 years contributed 13·6 per cent, whereas those aged 10 years and above contributed 45·5 per cent to account for the total unprotected persons of all ages, being 59 per cent of the 578 cases admitted in the city's hospitals as shown elsewhere. Again these unprotected persons of higher age group (45·5 per cent of the total cases admitted) comprised of indigenous 12·1 per cent and non-indigenous 33·4 per cent. The proportion of unprotected persons of the higher age group therefore was about thrice amongst the non-indigenous, compared to the indigenous population of West Bengal.

INADEQUACY OF INTELLIGENCE SERVICE: This and the popular tendency to conceal the infection when it starts, are points of importance.

As stated, birth registration in this State is defective by about 50 per cent. Death registration has been found defective by 42 per cent during the same survey. The responsibility for collecting and transmitting such information of vital occurrences in the rural areas lies with the village chowkidar who is a partly paid multipurpose worker not under the direct administrative control of any health authority, local or State. On him also devolves the responsibility of collecting and transmitting the informations in regard to the incidence and outbreak of epidemic infectious diseases in men or cattle. In the urban areas the guardians, householders, attendants—medical or otherwise, have been made responsible for reporting but the results have been no better. Apart from the apathy on the part of the general public, the legal provisions that already exist are seldom enforced partly due to the unwillingness of the autonomous Municipal Commissioners and partly due to the inadequacy in their organisational set-up.

A prompt intelligence service plays a vital role in the prevention and control of epidemic diseases, particularly of airborne ones like smallpox.

But the usual experience in this State has been that the first information of an outbreak reaches the peripheral outpost of the public health administrative machinery of the local authorities, and that of the State, after considerable delay or when several deaths have already occurred, i.e., 4-6 weeks after the infection has started in a given locality. By the time the health workers arrive at the spot, the outbreak has already become widespread in the locality. An instance in point may be seen in Table 8. The first information received by the health staff was eight weeks after the date of the outbreak.

As stated above the village chowkidar or his like is expected to collect the information from the householder. But the householder, in most cases where smallpox has broken out, conceals the cases, generally due to his superstitious beliefs.

In a recent outbreak it was surprising to find a particular community having an almost universal belief that their patients would not survive, if they are even looked at by outsiders. Various types of other beliefs, superstitions and prejudices still prevail on a mass scale in different parts of the country and prevent the people from informing the village chowkidar and others. It often happens that the chowkidar comes to know of it only when a few deaths have occurred or some of the more enlightened neighbours have informed him.

The chowkidar in his turn takes his time to reach the information to the health outpost which may be days or weeks depending on the facilities of communication.

Even the deaths, which are at present the main sources of information about outbreaks of epidemic diseases are deficient in registration, omissions detected being 42 per cent, as stated elsewhere. To this may be added the fact that the causes of deaths are recorded (except at Calcutta) by laymen and seldom verified.

There are legal provisions for compulsory notification and registration of births and deaths within 8 days of occurrences throughout the State and for the compulsory notification of all dangerous diseases within 12 hours of cognisance in the urban areas only. But such provisions have not been of much help, for reasons stated elsewhere.

This being the state of affairs in dealing with such dangerous diseases and emergent situations, the inevitable follows, viz., delay in switching in the control measures leading to mass loss of precious lives. The health workers on arrival have only to chase the epidemic and prevent its further spread.

RESISTANCE TO VACCINATION AND THE CONTROL OF EVADERS: Very few people take vaccination when the vaccinator approaches them during their routine rounds. But when an epidemic breaks out, the health workers or the vaccinators on reaching the spot usually find themselves in a stormy position. The rather enlightened section, which is usually small, blames them for not making their appearance earlier immediately on the onset of the outbreak, whereas the majority of the rest stoutly resist vaccination and prefer to be advised by the priests and others. The vaccinators have either to persuade them or to compel them by force. Persuasion usually fails. Compulsion by recourse to legal provisions is a long and tortuous process and therefore useless as a weapon to readily cope with the situation. They are therefore compelled to seek police protection and perform vaccination by force. Here again in many backward districts, e.g., Maldah, Murshidabad, West Dinajpur, etc., the resister would immediately wash off or even suck off the vaccine lymph after such forced vaccination and apply cowdung. Further, strict purdah being the rule amongst certain communities, their women folk and youngster cannot be approached except through female vaccinators whose number is yet too few.

As the vaccination drive starts after the epidemic has already spread in the locality, it often so happens that a number of cases crop up even after vaccination, some of which end fatally. Obviously these are the cases that have been vaccinated at the latter part of the incubation period. This, however, results in an universal denunciation of vaccination and vaccinators and acts as a serious impediment to further progress of vaccination, tracing of contacts and the evaders, and discovering of the concealed cases in these localities.

INADEQUACY OF ORGANISATION: So far as the control of the outbreak in a given locality is concerned, the essence lies in the promptness with which the level of immunity is raised in the population living in the neighbouring areas as well as in the locality itself. The situation is generally met by mobilising health workers from elsewhere to reinforce the routine vaccinator of the locality. But the situation becomes different when the number of localities affected are multiple and the occurrence simultaneous. Temporary vaccinators, with or without a short course of technical training, are appointed on such occasions by the local authorities and rushed into the field. The performance of these temporary vaccinators is hardly above average. They cannot however be expected to do better and replace the seasoned vaccinators or health assistants because the problem they have to face in the field is not so much technical as social. To be effective the health worker has to devise ways and means locally to tackle successfully the barrier of popular prejudices and superstitious beliefs and persuade the people to take vaccination after winning their hearts.

So far as the preventive organisation is concerned, the usual allotment in the prevailing pattern is one vaccinator (appointed by the local authority) per thana or 1 lakh of population on an average over 100 sq. miles of area in the rural areas. He is assisted by 2 health assistants on an average who are multipurpose health workers, one being appointed by the local authority and the other by the Government. The load of work a year for the above team comprises of dealing with about 4,000 of births (including unregistered births) and 33,000 people for revaccination, the principle adopted in this State being to vaccinate all newborn and to revaccinate the rest of the people once in three years. Each primary vaccination requires on an average four visits by the vaccinator, viz., one for serving notice, one for the operation, one for enquiry and inspection on the 4th or 5th day and one for recording results on 10-12th day. The number of house visits required therefore for 4,000 births in the year comes to 16,000. The average performance of a whole-time vaccinator is about 5,000 vaccinations a year. The number of vaccinators required therefore for 37,000 vaccination (33,000 revaccinations and 4,000 primary) comes to 7·5. Against these 7·5 whole-time workers we have provided 1 whole-time and 2 part-time health workers.

Further about 2/3rds of the total public health staff in the field is dissatisfied due to the difference in the emoluments between the staff employed by the local authorities and the supplementary staff employed by the Government, the former being at the pre-war scale and therefore too low. This difference in pay and emoluments for the same type of work done in the field has led to a sense of frustration amongst the staff concerned and has undermined the entire public health administrative machinery of the local authorities who are statutorily responsible for the prevention and control of dangerous epidemic diseases.

The provision in the existing organisation for supervision of the field work is no better. One sanitary inspector has been provided for each

public health circle (average 1 lakh population over 100 sq. miles). He too is a multipurpose worker insofar as he has to act as the food inspector, sanitary supervisor, controller of nuisances and of dangerous epidemic diseases, inspector of routine vaccinations for preventive purposes, etc. The major part of his time however is absorbed in inspecting the large number of *hats* and markets in his big unit area, collecting food samples in the legally prescribed manner which takes time (average half an hour per sample), and in attending the law courts in connection with the food adulteration cases. He finds too little time for supervision and inspection of the vaccination which is so important in the prevention of smallpox.

The above represents the peripheral organisation in the rural areas. The position in the urban areas is no better so far as adequacy is concerned. The sanitary inspector of the urban area, in addition, has to look after the conservancy.

LACUNAE IN THE PUBLIC HEALTH ACTS: The more important ones are discussed below:

(i) The Vaccination Act—This provides for compulsory primary vaccination of all unprotected persons and of all newborn within 6 months of birth. This Act does not help much when an epidemic breaks out. The notice period provided in the Act for compelling vaccination is 15 days which is longer than the incubation period of the disease. As such it defeats its purpose, viz., conferring protection against infection on such occasions. Further, the Act does not provide for compulsory revaccination.

(ii) The Municipal Acts, The Local Self Government Act, The Village Self Government Act, etc.—These Acts assign the responsibility for the prevention and control of epidemic diseases to the local authorities, viz., the Municipalities for urban areas and the District Boards for the rural areas. Considerable power has been given to the Municipalities by the Municipal Acts for compelling notification of dangerous epidemic diseases and for restraint of infection in the urban areas. The L.S.G. Act and the B.V.S.G. Act or the Village Panchyat Act that govern the rural areas are however lacking in these powers, so far as the notification by the guardians, attendants—medical or otherwise, are concerned.

There are thus many lacunae in the existing Acts but these are met by promulgating appropriate regulations under the Epidemic Diseases Act. It is therefore not so much the lack of adequate power as the lack of adequate resources to maintain an adequate organisation together with other social factors discussed elsewhere that has stood in the way of the local authorities making satisfactory progress in the matter of prevention and control of smallpox.

THE VACCINE LYMPH—ITS RELATIVE INADEQUACY: This State maintains its own institution for producing vaccine lymph and the Corporation of Calcutta maintains another for the population of Calcutta only. The total annual production amounts to 2·85 (2·25+0·6) lakh c.c.

The technique approved by the Indian Council of Medical Research is adopted for the production of vaccine lymph which is preserved at −10°C at Calcutta. The vaccine has to pass the required tests of purity, safety and potency before it is issued. The supply to consuming centres in the mofussil is arranged by post at weekly intervals. The field records show about 88 per cent successful results so far as primary vaccination is concerned. The potency is therefore mostly retained when it is consumed in the field.

As stated elsewhere, the policy of this State being to vaccinate all newborn within 6 months of birth and to revaccinate the rest once every three years, the load for vaccination in any given year comes to 91 lakh revaccinations and 12 lakhs of primary vaccination (6 lakhs recorded births and 6 lakhs omissions). 1 c.c. is good for 60 revaccinations or 40 primary vaccinations. On this basis the quantity required for revaccination is 1·51 lakh c.c. whereas the quantity required for primary vaccination is 0·3 lakh c.c. the total being 1·81 lakh c.c. a year. The production of vaccine lymph is therefore adequate in quantity with due regard to the policy so far followed in this State.

But due to the growing increase in the birth rate and the increasing demand for annual revaccination from the enlightened section of the population in recent years shortage is being felt as it is not possible practically to stick to the aforementioned policy and deny the people seeking annual revaccination. The shortage was felt very acutely in 1957-58 when simultaneous demand for revaccination from the different parts of the country came at one stage and we had to procure extra supply from other states to the extent of 50,000 c.c. to meet the demand.

PARADOX REGARDING PARALLEL RISE IN VACCINATION AND SMALLPOX CURVES: It may be seen that the number of vaccinated persons is increasing each year but the residual smallpox is still there in the country with its periodic exacerbation. The explanation lies in the fact that those who are vaccination-minded get themselves ravaccinated more than once in the year whereas those who evade vaccination still remain underground and keep the flame of smallpox burning in this State.

SPECIAL CAUSES IN RELATION TO CERTAIN DISTRICTS: A comparison of the averages in the morbidity and mortality rates (Table 9) would indicate that smallpox prevails more intensively in certain districts (Calcutta being taken as a district) than in others. These districts are enumerated in the table in the order of severity and the special factors operating in these areas have been discussed below:

TABLE 9—SHOWING AVERAGE ATTACKS AND DEATHS PER MILLE IN CERTAIN DISTRICTS

District	Average (1953-57) rates per mille	
	Attack	Death
1. Howrah	0·48	0·28
2. Calcutta	0·31	0·21
3. Murshidabad ...	0·36	0·15
4. Malda	0·34	0·1
5. 24 Parganas ...	0·22	0·1
6. Hooghly	0·22	0·08
7. West Dinajpur ...	0·28	0·06
8. Burdwan	0·19	0·04

Howrah, Calcutta, 24-Parganas and Hooghly—The majority of the States' industrial and urban areas are located in these districts where migratory population abounds. Besides, Howrah and Calcutta happen to be the terminuses of two sections of a big railway system across the country. Calcutta in addition is the major port of the country with a considerable number of floating dock labour population to deal with.

Murshidabad and Malda—Certain communities abound in these districts amongst whom strict purdah system is yet observed. Besides these districts are contiguous to East Pakistan with a long border line, the people on both sides having cultural and other relations.

West Dinajpur—Besides being contiguous to East Pakistan by ⅔rds of her total boundary this district is also contiguous to Bihar a portion of which was transferred to this District in 1956.

Burdwan—Besides accommodating the existing coalfields and iron and steel industries of this State with their floating labour populations, this district is fast being industrialised further.

THE REMEDY

In view of the prevailing circumstances, the remedy so far as eradication is concerned obviously lies on the one hand in early locating and isolating the infection that is already in this State and in the vaccination of the total population of the State for a few consecutive years so as to make the soil wholly unsuitable for the seed of infection to thrive at all, and on the other hand, in the prevention of both the infected and the unprotected persons migrating into this State from without. Of these again, vaccination stands foremost as one single measure of sure effect.

For the purpose of localisation and isolation of the infection that is within the State, what are essentially needed are: an adequate intelligence service, adequate isolation arrangements together with a favourable psychological attitude on the part of the people. For prevention of migration into this State of infected and unprotected persons from without the essentials are: the framing and rigid application of appropriate legislation, an elaborate surveillance organisation, a national campaign and international co-operation.

The measures needed are discussed in a general way in the following paragraphs:

Vaccination.

(i) *Its policy*—So far as vaccination is concerned the quantity of vaccine lymph produced by the vaccine institutes of the country is far too short of requirements for the immediate vaccination of the total population. The deficit may be met either by immediately expanding the vaccine institutes so as to produce sufficient vaccine lymph or by indenting the balance from abroad in freeze-dried form. The approach through the expansion of the vaccine institute, which is in the scheme stage at present, cannot serve our immediate purposes. The only alternative therefore is indenting sufficient quantity of freeze-dried vaccine lymph from abroad.

If, due to reasons of import control connected with the serious question of foreign exchange reserve, it be not possible to import the desired quantity of freeze-dried vaccine lymph, then we would have no other alternative but to pursue the traditional vaccination policy of this State, viz., vaccination of all unprotected persons and newborn and revaccination of the people once every three years. For this, an adequate organisation for checking has to be provided. The Vaccine Institute of this State has already been producing the adequate quantity for the purpose, as already pointed out elsewhere.

(ii) *The approach*—The ideal should be to arouse the sense of responsibility in each individual of the nation so that he gets himself and the members of his family, if any, vaccinated and revaccinated periodically and maintains a health card duly attested by the vaccinator which can be produced in testimony before the health workers

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when they visit during their routine rounds for checking.

The above can be achieved by introducing a suitable legislation and ruthlessly enforcing its provisions. But whether such a drastic legislation would be passed by the legislature, and even if it is passed how far it can be enforced in the practical field remains a very doubtful question. But an attempt may perhaps be made insofar as it will at least open up a discussion and influence public opinion in favour of vaccination to a great extent.

Leaving aside the doubtful approach through legislation, we have to have recourse to health education by an elaborate organisation penetrating the very homes of the people so as to overcome the formidable obstacles on the social front, e.g., prejudices, superstitious beliefs, etc., and create a strong public opinion in favour of vaccination.

The approach through legislation or health education or through both would not be effective unless it is supported by an adequate organisation within an easily negotiable distance of the residences of the people.

The organisation.

(i) The routine organisation—A peripheral organisation to be effective has to be adequately staffed and situated within an easily negotiable distance of the residences of the people. The Bhore Committee has recommended vaccination through multipurpose workers such as public health inspectors, public health nurses, midwives, trained dais, health assistants instead of by the whole-time vaccinators. In their short-term programme, the distribution works out at 1 such multipurpose worker for each 2,500-3,000 of population. In view of the urgency of the situation we may have to employ such multipurpose workers in performing vaccinations wholetime or paying the greatest emphasis to vaccination in relation to their other duties. In other words, as an emergency measure, we may have to utilise them more or less as whole-time vaccinators. Such a worker is expected to be good for 5,000 people. It is preferable that workers should at least include a female so as to be able to deal with the purdah or zenana question. And the workers should necessarily be available within a distance of 1½ miles which can roughly be considered negotiable. This requires a unit to be constituted within an area of 10 sq. miles which usually accommodates a population of 10,000 approximately. For such type of unit therefore we would need two health workers one of whom may be a male health assistant and the other a female of the rank of an assistant midwife. They in a team should make house-to-house visits, detect omissions in recording births and deaths, verify causes of deaths as far as practicable, inspect the level of immunity in the members of the families, vaccinate all newborn and unprotected persons, revaccinate those who have not been revaccinated in the two preceding years, give simple health talks in the course of conversations on familiar subjects, check the health cards of the family and maintain the records in the prescribed manner.

In the course of their visits to the families, they can perform other public health works as far as practicable.

The vaccinations performed, particularly the primary ones, require to be properly inspected at least on a sample basis by a member of the superior staff who should be a medical man, and properly recorded. He should also be responsible for planning the programmes and immediate supervision of the subordinate workers. On these supervising officers depends the success or otherwise of the programme. He should ensure that all the families within his unit were duly visited by the two health workers and each item of their specified duties attended to and proper records have been maintained both at the unit office as well as in the family. The above medical man for success of his programme would need integrating his curative art with his preventive duties. There can be no better approach to preventive work than by winning the hearts of the people by obliging them through curative service.

The requirements of the situation if pieced together would conjure a picture of a small health unit for each 10,000 of population in 10 sq. miles area or in lesser areas in the urban localities with its office at a central place.

The above means that for our 2·8 crores of population in this State we would need some 2,800 health units (including the already existing ones), each staffed with 1 R.M.O.H. and 1 male health assistant and 1 female assistant midwife besides other staff for curative and other purposes, according to necessity. The unit could be made a bit bigger if transport could be arranged for the staff in places where there are communication facilities.

At the State level there should be an exclusive whole-time epidemiological unit whose routine function should be to evaluate, to study, to investigate, to revise the plans according as necessary, to instruct and to get them executed through the district and subdivisional level officers.

Unless and until along with other measures an adequate organisation of the above or a similar pattern has been provided, prevention of small-

pox would not come within the range of immediate possibilities. In that case we will have to plod and pursue the policy of maintaining the steady and gradual decline in the trend of smallpox and its periodic exacerbation as has been the case since the last exacerbation in 1950-51 for many more years to come.

As the setting up of so many fullfledged health units or centres may not be immediately possible due to financial and other reasons, we may suggest some interim arrangement. There may be as many vaccination centres staffed by 1 health assistant and 1 assistant midwife instead of fullfledged health centres and their activities should be supervised by a whole-time inspector of vaccination posted at the thana level. The latter officer should be in addition to the existing sanitary inspector whose time is mostly absorbed in performing his multifarious duties. This arrangement though not adequate may effect significant improvement during the interim period. For our State we would need some 2,500 such vaccination centres and 250 such inspectors of vaccination for the 25 million of our population excluding 3 million approximately covered already by health centres. The duties of these inspectors of vaccination should be the same as that suggested elsewhere for the medical officers of health units so far as vaccination and prevention and control of smallpox is concerned.

(ii) Through hospital and health centre organisation—Further, the people are becoming more and more hospital-minded both in urban and rural areas, particularly in regard to maternity cases normal or abnormal. This fact together with our hospital and health centre organisation can well be utilised for the furtherance of the vaccination campaign amongst the newborn who may be vaccinated before being discharged from the hospitals. Two questions might arise in this connection requiring consideration. Firstly whether the skin of the new-born deriving immunity from the mother would sufficiently react? Secondly what would be the popular reaction in view of the additional load to the convalescing mother, in the shape of nursing the baby in case of successful reaction.

In regard to the first question an experiment was made in the hospitals and health centres of this State. Of 5,578 babies so vaccinated, 51·4 per cent reacted successfully (Table 10).

As regards the other question the people are yet to be psychologically prepared for it.

Anyway it would undoubtedly be a step forward if this system could be introduced. This State has already started pursuing the said procedure.

TABLE 10—SHOWING RESULTS OF VACCINATION OF NEWBORN BABIES

No. of babies born in the hospital under study	No. of newborn babies vaccinated within 5 days of birth	No. of newborn babies whose vaccination was refused	Result of vaccination		
			Successful	Failure	Unknown
9,992	5,578	4,414	2,869	488	2,221
Percentage	(55·8)	(44·2)	(51·4)	(8·7)	(39·9)

(iii) Through educational organisation—Checking and performance of vaccination or revaccination may be made the condition precedent to the admission of scholars to primary schools. When primary education has been made compulsory this step is likely to provide an effective check for those who might have escaped vaccination since birth.

(iv) Through employer's organisation—Every individual may be vaccinated or revaccinated as the case may be at the time of employment by the State or by corporate bodies like industrial concerns and mining, plantation and other organisations.

An improved intelligence service—So far as information regarding births and deaths is concerned, detection and recording of omissions by periodic house-to-house visit by the staff of an improved and adequate organisation stated elsewhere seem to be the only sure method for improving matters. At the same time health education need be given to impress on the householders the importance of Birth and Death registration. Thirdly, production of birth certificates may be insisted upon from all entrants to primary schools. When primary education becomes compulsory, which is going to materialise in the near future, this procedure is expected to help materially. Lastly, the existing legal provisions may be enforced more energetically in suitable cases.

So far as the information of dangerous epidemic diseases is concerned, we have to rely chiefly on raising the health consciousness and the sense of community health in the population by health education. Superstitions and prejudices die very hard. Legislation is not likely to help much in a country where the majority is labouring under such complexes. However, the legal provisions are already there in the urban areas for compulsory notification of all such diseases within 12 hours of their cognisance. Similar provisions remain to be made for the rural areas also. Such provisions for the rural areas, when made, would not

be operable until a free diagnostic laboratory service has been organised all over the country.

Further, the existing burial grounds and the burning ghats in the country whether in the urban or in the rural areas have to be improved as necessary and the control over them tightened up. Each such place must be under the charge of a sub-registrar (a medical man) who should check the causes of deaths and register them accordingly. Where there are none (mostly in the rural areas), official burning ghats and burial grounds may be provided and specified for a particular group of villages or towns or both as the case may be. No disposal of corpses in unauthorised places as is being done at present should be permitted. This is likely to help a lot in detecting occurrence of infectious diseases comparatively early, besides contributing its share to the other aspects in the restraint of infection.

Liquidating resistance to vaccination and control of evaders—Resistance to vaccination is generally due to the prejudices and superstitious beliefs amongst the population or due to purdah system or due to the fear of loss of earning consequent on the absence from duty in cases of reactions following the vaccination of the unprotected adults.

For the former two groups health education and employment of female vaccinator respectively seem to be the only answers whereas for the latter, ways and means have to be found out to compensate the losses incurred, if any. It should not be difficult to compensate those of the latter group who are employed, particularly in big industrial concerns, plantations, mining areas, etc., because the employers can be made to provide for such compensation by suitable legislation. The problem however lies with those who are not employed in such concerns or work in their own fields, or own concerns, or petty jobs. Who would compensate them? Perhaps we have no other alternative but to persuade this group by health education or compel vaccination by enforcing the provisions of the law. If compulsion has to be resorted to, arrangements have to be made for vaccination at night or in the early morning before they can go out to attend their daily vocation.

Isolation arrangement and ambulance service—With the progress of health consciousness and sense of community health amongst our population, the need for hospitalisation and isolation of infectious cases in hospitals would be increasingly felt. In the urban areas, where the infectious cases are usually much higher than in the rural areas, there are already considerable facilities for isolation in hospitals. These are being further expanded. An adequate ambulance service yet remain to be organised in most urban areas connecting the homes of the people with the infectious diseases hospitals.

So far as the rural areas are concerned, already beds for infectious diseases have been provided in the primary health centres. But the major portion of the country yet remains to be covered with such health centres. Besides an ambulance service is non-existent at present in the rural areas. Further the communications in the rural areas are yet none too satisfactory. This calls for the provisions for temporary camp hospitals units for infectious diseases which could be established at such places where and when these were most needed. It would be better if these could be mobile.

Health education—From what has been discussed above it would be evident that our chief obstacles to the progress towards eradication of smallpox in this country lie in the social plane. Until we have succeeded in eliminating the psychological complexes of our population and other social factors it would not be possible to secure their co-operation in our campaign. And without the voluntary co-operation of the people themselves no public health campaign can ever succeed, particularly in a democratic country as the Indian Union is. To remove such psychological complexes and to enable the people to develop a correct attitude towards fighting such mass diseases, the only reliable weapon at our disposal is health education. It is high time that elaborate organisations are developed on a countrywide scale at all levels and for all categories of people beginning from the school children down to the homes of the people where diseases, particularly infectious ones, have occurred.

Legislation—The lacunae in the existing Acts as discussed elsewhere may be covered by making suitable provisions in them. In addition, further legislation may perhaps be considered on the following lines:

(a) Every individual member of the nation should be responsible for getting himself and the members of his family, if any, duly vaccinated and periodically revaccinated and for maintaining proper records for production before the inspecting health staff.

(b) No scholar shall be admitted to any primary or multipurpose school unless he or she produces a valid certificate of vaccination or revaccination.

(c) No employer (whether in the plantations, e.g., tea gardens, mining areas, industrial concerns, factories or offices, etc.) should employ anybody unless he produces a valid certificate of vaccination at the time of employment.

(d) Those of the employees who would be physically unfit for attending to their jobs as a result of reaction following vaccination, may be given leave on average pay for the period deemed necessary by a competent medical officer or the local health authorities.

(e) Provisions may be made for the control of the importation of infected and unprotected persons from foreign countries and other States in the Indian Union.

So far as the foreign countries are concerned no foreigner shall cross into this State unless he possesses a valid certificate of vaccination and re-vaccination and is declared fit by a competent health authority so far as freedom from infectious diseases is concerned.

So far as the other States in the Indian Union are concerned a similar provision may be made but it will be difficult to administer it in the absence of a visa and passport system. However those of them that might migrate into the State in search of employments would be checked at the employer's level as suggested above. This problem could have been solved if uniform measures were introduced simultaneously all over the Indian Union.

Expansion of the Vaccine Institute—Considered in the light of the discussion elsewhere, the State Vaccine Institute needs expansion by twice its present size so as to produce 4 lakh c.c. of vaccine lymph instead of 2·25 lakh c.c. now produced annually. Otherwise it would not be possible to vaccinate all the newborn in this State and revaccinate the rest once each year, the demand for which is steadily mounting with the increase in the vaccination-mindedness of the population.

Further we must introduce freeze-drying methods so as to prevent wastage of lymph due to transport and storage as well as to prevent temporary shortages in the field.

National programme wanted—In view of the fast developing communication facilities between the States of the Indian Union and the increasing intercourse amongst the population of the States, it is essential that the measures against smallpox including legislation should be uniform and on all-India basis, if we really mean to stamp out smallpox from any State, and for that matter, from the Indian Union. We need introduce and implement a national smallpox control programme on the analogy of the National Malaria Control Programme. Unless the measures are radical, indifferent results are bound to follow.

International measures—The World Health Organisation in the recent years is making wonderful contributions towards improving the health of the people of the world as a whole and fighting mass diseases in the underdeveloped countries in particular. The international factor in the prevention and control of smallpox in this State, as well as in the Indian Union, is still a very potent force, in view of the fact that the recently effected political vivisection of India has not yet been able to appreciably reduce the social and cultural relationship that existed for centuries between the people of the two newly-created countries. It is very necessary therefore that measures should be organised also at the international level. The attention of the W.H.O. requires to be invited to this aspect of the question. They could help by organising to eliminate or at least reduce the level of smallpox in our neighbouring countries, and by supplying sufficient quantity of freeze-dried vaccine lymph so as to enable us to undertake the mass vaccination campaign on a countrywide scale. For our State we would need 1·5 lakh c.c. of such lymph annually to supplement our production of 2·5 lakh c.c. a year, as discussed elsewhere.

Conclusion

Some of the above mentioned measures may appear too ambitious or harsh. It may even be questioned, if it would be advisable to attempt introducing them at this stage in view of the possible social reaction as well as their financial and organisational implications. Our answer to this question is that it has to be recognised that early eradication of smallpox, in the face of the existing conditions of our society, is not a simple problem nor is it capable of a solution through milder measures.

If adoption of milder measures become inescapable for some reason or other, we are afraid we would have to tolerate smallpox, with a gradual decline in its trend over many years to come, till the social factors are resolved by progressive general education and health education.

Summary

During the year 1957 there were 18,612 attacks and 10,095 deaths from smallpox in this State with a morbidity rate of 0·6 and a mortality rate of 0·4 per mille.

The districts of Howrah, Calcutta, Murshidabad, 24-Parganas and Malda were more affected than the rest. The incidence was higher in the urban areas than in the rural, in the females than in the males and in people aged 10 years or above than those aged under 10 years. Compared with 1956 when morbidity rate was 0·1 per mille and mortality rate 0·04 per mille, there has been a sharp increase in 1957, the special causes of which have been discussed.

Progress effected in the control of smallpox during 1953-58 compares favourably with that during 1947-52.

The question of considerable residual smallpox in the State has been dealt with.

Remedial measures have been adequately discussed.

ACKNOWLEDGMENT

I express my gratitude to Lt. Gen. D. N. Chakraborty, our D.H.S.-Secretary, for his kind patronage and to Dr. A. N. Dasgupta, M.B., D.T.M., D.P.H., Dy. A.D.H.S. and Sri K. Chakrabortty, the Sanitary Inspector for the assistance rendered.

Investigation on the virulence of variola virus and the state of immunity of the patients suffering from smallpox during the recent epidemic was carried out by the Virus Research Section of the Calcutta School of Tropical Medicine (Annual Report 1956-57).

CASE NOTE

CHOLELITHIASIS WITH CYSTIC PNEUMATOSIS

P. SANJIVA RAO, M.B.B.S.

Government Lawley Hospital, Coonoor

INTRODUCTION

This case is reported because of the occurrence of extensive enteric cystic pneumatosis.

CASE REPORT

Sri R. M., aged 42 years, was admitted as an in-patient in February 1958 with the complaints of epigastric pain setting in soon after a meal and often relieved by spontaneous vomiting about an hour later and abdominal distension relieved by belching or by passage of wind. The complaints started about a year ago with loss of appetite and nausea. There was no fever or jaundice. Gradually the epigastric pain set in and became worse. For nearly 6 months this pain used to disappear on spontaneous vomiting occurring once every 2 or 3 days. Such vomit often contained food taken 48 to 72 hours earlier. Of late, the vomiting became a daily event. The pain and abdominal distension resulted in disturbed sleep.

On examination he was emaciated, dehydrated and anaemic. The temperature was normal ; the pulse rate was 80 per minute. There was no icterus. Cardiovascular and respiratory systems were normal.

Abdomen was distended moderately and meteorism was present. The liver and spleen were not palpable. After an enema visible peristalsis was obvious.

LABORATORY FINDINGS :

Urine showed no abnormality.

Hookworm ova present in the stools.

There was severe microcytic hypochromic anaemia.

Fractional test meal—Total and free acid levels were within normal limits. Resting juice measured 26 ounces and consisted of foul-smelling, bile-stained, mucoid fluid containing food particles.

Barium meals series—1. (Five minutes after meal). Showed an enlarged stomach with plenty of gas in the bowels. There were no opaque shadows in the subhepatic region.

2. (Half an hour later). Showed an elongated pear-shaped shadow in the subhepatic region and a smaller oval shadow medial to the first and lying above a gas bubble in the colon (Fig. 1, *vide* Plate).

3. (Seven days after the barium meal). The pear-shaped shadow assumed a vertical position and corresponded in shape and position to the gall-bladder. There was another oval shadow medial to the first (Fig. 2, *vide* Plate).

TREATMENT :

It consisted of deworming ; blood transfusion, iron therapy and administration of ascorbic acid, potassium salts etc. and operation.

Operation notes—The stomach was dilated. There was no gastric or duodenal ulcer. The adhesions had caused duodenal obstruction beyond the sphincter of Oddi. Vigorous peristalsis had expressed the barium through the relaxed sphincter into the gall-bladder. The gall-bladder had a large stone in it almost filling up the gall-bladder. There was another stone in the cystic duct (Fig. 3, *vide* Plate). The larger stone was from the gall-bladder and consisted of a stone covered with inspissated barium. The smaller stone was from the cystic duct and was streaked with barium.

The proximal 56 inches of the small gut had pedunculated or sessile groups of multilocular cysts arising either from the mesenteric or anti-mesenteric border (Fig. 4, *vide* Plate). The individual cysts varied in size from 5 to 15 mm. in diameter. Haemorrhage had occurred into some cysts : these cysts felt solid and were blood-red in colour. Here and there, there were solid oval bodies coloured green, yellow or white. All the other cysts contained only gas collapsing on being punctured, with a hissing sound. Smaller cysts were seen in a process of eruption under the serous coat. The peritoneal cavity contained a little blood-stained exudate and some gas-filled cysts and some solid oval bodies.

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PUBLIC HEALTH, AUTHORITY AND THE PUBLIC

Public health today is perhaps the most important branch of medical science. The physician's task no longer ends with the administration of physic to the ailing. One of his primary concerns is to see that illness does not occur. In spite of the great advances that have taken place in medical sciences, we know that some diseases are not amenable to treatment and the only way to combat them is not to allow them to happen. The comparatively new science of immunology has indeed added a new dimension to medicine in general and public health in particular, especially in the field of communicable diseases.

Two diseases that pay us annual visits, more often than not in the form of epidemics, and take a heavy toll of human lives, to say nothing of the suffering and disablement they cause, are cholera and smallpox. The idea that they are tropical and inevitable is long past, though many lay people and even some people in authority cling to this exploded myth. Given the reservoir, which unfortunately still persists, they are the offspring of bad immunity and worse hygiene. The physical climate has very little to do with them. It is the mental climate of indifference, inaction and sloth that is responsible.

Some time ago the West Bengal Government set up a Public Health Advisory Committee to study and advise on the prevention and control of cholera and smallpox. We have not had the opportunity to study the report in details, but from what have appeared in the press it is clear that the Committee's recommendations do not contain any spectacular or novel suggestions. This is as can be expected. For the simple fact remains that there is nothing new that can be suggested for the prevention and ultimate eradication of these two diseases. The committee's study no doubt concerns itself with West Bengal, but the principles are of general application throughout the country.

The means of preventing cholera as is well known are quite simple, protected water supply in adequate quantities, provision of safe food and drink, sanitation in the home and outside and immunisation where necessary. It is that easy on paper ; in reality, a complex and gigantic problem.

The prevention of smallpox is simple—immunity. Primary vaccination of the newborn followed by periodic revaccinations is the only method at our disposal to combat the scourge. The committee has but naturally put forward these suggestions, which are also made by Chatterjee[1] elsewhere in this issue.

This too is quite simple on the face of it. But how wide and complex the problem is in the matter of execution even for a small State can be gauged from Chatterjee's (*loc. cit.*) paper.

At it appears, we—medical men and Authority —know what has to be done. There can be no difference on that score. The crux of the problem is not what is to be done but how to do it.

Public health is not something apart from the people. It is the sum-total of what we do with our personal health. What the people do or do not do is largely determined by habit patterns set long ago. Health education and active participation in health work are the only means to break this barrier down. As has been pointed out, "in any and every part of the world, it is the ordinary people who matter in the development of public health—not as the beneficiaries of what professors teach and students learn, but as active participants".[2] Further "even an illiterate villager will assume responsibilities for his own and his community's health if given freedom to act and if helped to develop a simple form of organisational structure through which he can work."[3]

While Authority must take responsibility for the execution of the problem and find the requisite finance, it must take the people with it. That again is a problem in health education and co-operation.

There is another point of importance. Epidemics do not need passports or visas to cross national borders. They jump frontiers with impunity as was seen in the last smallpox epidemic which took a heavy toll of life on both wings of erstwhile Bengal. This can only be prevented by international co-operation. This point has been emphasised both by the Committee and by Dr. I. A. Cockburn, Provincial Health Adviser to the East Pakistan Government. He suggested the setting up of a regional council of medical experts from India, Pakistan, Burma and Ceylon for the adoption of co-ordinated and simultaneous action for the eradication of smallpox, cholera, malaria and other diseases endemic in these countries. The suggestion is commendable but can it be carried out on a practical plane? We hope Authority will examine it.

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[1] CHATTERJEE, S. K.—*J. Indian M. A.*, **32** : 89, 1959.
[2] Ten Steps Forward, World Health Organisation, Geneva, 1958, p. 21.
[3] *Ibid*, p. 22.

CURRENT MEDICAL LITERATURE

Pleural Effusion Due to Myxoedema

SCHNEIERSON, S. J. AND KATZ, M. (*J.A.M.A.*, **168**: 1003, 1958) from the Department of Medicine and the Berth C. Reiss Radioisotope Laboratory, Lebanon Hospital, report that a patient who had complained of a mild, nonproductive nocturnal cough developed slight swelling of both legs and was then found on fluoroscopy to have a right-sided pleural effusion. Part of the fluid was removed by thoracentesis; the rest disappeared gradually after a diagnosis of myxoedema was made and treatment with thyroid substance (in dosages up to 0·06 g. per day) was begun. The patient's appearance improved remarkably, and his cough stopped. The diagnosis was confirmed at autopsy when the patient died, half a year later, after a cerebral haemorrhage. This experience illustrates the fact, already known, that serous effusions sometimes occur in myxoedema even in the absence of cardiovascular, renal, or other causes of water retention; but the case was impressive because in this patient the unilateral pleural effusion was the sole presenting effusion in the course of the myxoedema.

Combined Gastric and Duodenal Ulceration

MANGOLD, R. (*Brit. M. J.*, **2**: 1193, 1958) from the Department of Gastro-enterology, Central Middlesex Hospital, London, gives below a summary of his observations of 157 cases of combined chronic gastric and duodenal ulcers seen during a period of 8 years:

The observed incidence of combined ulceration was 2·7 per cent based on x-ray investigation. With the inclusion of an estimated 25 per cent of prepyloric ulcers the incidence would reach 3·5 per cent. Thus about one in every seven hospital patients suffering from ulcers of the stomach and 1 in 30 patients having a duodenal ulcer or ulcer scar will be found to show combined ulcers.

With due awareness of the frequent occurrence of combined ulcers, the radiological examination represents a reliable means of their diagnosis.

Combined ulcers run a higher risk of bleeding, making a surgical treatment more often advisable than in either gastric or duodenal ulcer occurring alone.

Pyloric stenosis does not appear to be a major factor in the pathogenesis of combined ulcers.

Perforation and Haemorrhage from Duodenal Ulcer caused by Rauwolfia

WEST, W. O. (*Ann. Int. Med.*, **48**: 1033, 1958) from the Department of Internal Medicine, Charleston Memorial Hospital, Charleston, West Virginia, in reporting on five cases of perforation and haemorrhage from duodenal ulcer during administration of *Rauwolfia serpentina* observes:

Five proved cases of complicated duodenal ulcer, diagnosed clinically, by x-ray or by surgery, were presented. All of these patients were taking *Rauwolfia serpentina* for hypertension when the complications developed. This was thought to represent a causal relationship. These cases accounted for approximately 12 per cent of all the perforations and haemorrhages from duodenal ulcer seen at our 250-bed general hospital over a one and one-half year period. There were four white males and one white female in this study, all over the age of 50; four gave a fairly definite history of peptic ulcer.

Rauwolfia serpentina should not be used in patients who have peptic ulcer.

If these agents are employed, for whatever reason, the potential rise in gastric acidity should be buffered with antacids or between-meal feedings prophylactically. Anticholinergic drugs are probably of little value.

If vague or specific upper gastrointestinal symptoms develop during the course of therapy, the agent should be stopped and the patient evaluated clinically and, if possible, by x-ray examination.

In cases when an adequate history is unobtainable, or in patients who cannot communicate their feelings, another antihypertensive or tranquilliser, if indicated, should be employed.

The key to correct diagnosis and good therapy rests for the most part in a well documented history, never slighting the review of systems and history of drug intake.

The authors maintain that mild, labile essential hypertension is best treated with phenobarbital sedation, low salt diet, and weight reduction if the patient is overweight.

Peptic ulcer occurrence, recurrence and complications associated with the administration of *Rauwolfia serpentina* probably contribute another to the overgrowing list of "diseases of medical progress". (*Author's summary*).

Acute Pancreatitis

SHALLENBERGER, P. L. AND KAPP, D. F. (*Ann. Int. Med.*, **48**: 1185, 1958) from the Department of Gastroenterology, Guthrie Clinic and Robert Packer Hospital, Sayre, Pennsylvania, from a clinical review of 72 attacks occurring in 54 patients observe:

When the diagnosis has been made with a reasonable certainty, medical management is to be preferred. Surgery should be reserved for complications or the correction of associated biliary tract disease and, if the patient's condition permits, should be delayed well into convalescence. In general, the preferred medical therapy consists of the following procedures: (1) correction of fluid and electrolyte balance and the administration of whole blood, plasma or plasma expanders of albumin to combat shock (particular attention being paid to correct calcium deficits in addition to the usual electrolytes); (2) relief of pain with meperidine or splanchnic block if necessary; (3) an attempt to antagonise the usual stimulation and ability of the pancreas to secrete, by use of gastric suction, anticholinergics and antacids; (4) administration of broad spectrum antibiotics where indicated. In addition to the above plan of general treatment insulin should be given to control hyperglycaemia when present. In the series under review, the early administration of insulin seemed to exert a protective effect on the severity of subsequent diabetes.

Use of Radioactive Phosphorus

CHODOS, R. B. AND ROSS, J. F. (*Ann. Int. Med.*, **48**: 956, 1958) from the Robert Dawson Evans Memorial and Massachusetts Memorial Hospital and the Department of Medicine, Boston University School of Medicine, Boston, from a report of 10 years' experience on the use of radioactive phosphorus in leukaemia, polycythaemia vera and lymphomas observe :

Radioactive phosphorus is an effective agent in the management of chronic granulocytic leukaemia, chronic lymphocytic leukaemia and polycythaemia vera. It was not of any significant benefit in Hodgkin's disease, multiple myeloma, acute leukaemia and mycosis fungoides.

The advantages of radiophosphorus include ease of administration, the infrequency of radiation sickness, and the fact that it can be given with minimal inconvenience to the patient.

Patients treated with radiophosphorus survive approximately as long as those treated by other agents. However, the survival of patients in the present series who were treated intermittently with radiophosphorus was significantly less than that obtained by Osgood with continuous titrated irradiation.

The programme of therapy used for each condition has been presented. Treatment in leukaemia is individualised. Dosage is dependent upon the type of leukaemia, its current status and the response of the individual patient. Supplementary therapy with x-ray is used if needed to reduce splenomegaly or lymphadenopathy. Supportive therapy with blood, antibiotics and steroids is used as required.

Radiophosphorus treatment of polycythaemia vera likewise is individualised. Initial or supplementary venesection, x-ray therapy or other treatment may be required in individual cases.

Leukopenia, thrombocytopenia and perhaps acute blastic leukaemia may occur after P^{32} treatment of the chronic leukaemias, particularly the granulocytic forms. Terminal leukaemia has also been observed in polycythaemia vera. The incidence of this latter complication probably does not exceed that encountered in polycythaemia vera treated by other methods. These hazards of radiophosphorus therapy must be considered whenever radiophosphorus is administered.

Mortality of Severe Head Injury

MACIVER, I. N., FREW, I. J. C. AND MATHESON, J. G. (*Lancet*, **1**: 391, 1958) from the New Castle General Hospital, in giving a summary of their observations on the role of respiratory insufficiency in the mortality of severe head injury write :

Of those who survive the accident itself, the main cause of death in patients unconscious after head injury is respiratory insufficiency and anoxia. The anoxia is due to central disturbances of the control of respiration, and reduction of compliance of the lungs by blockage or irritation of the bronchial tree by aspirated material and by retention of mucus.

A regime must be used similar to that laid down for bulbar poliomyelitis :

Correct posture to prevent seepage into the lungs and tracheobronchial tubes.

Temporary intubation.

Isolation of the lungs from the disorganised pharynx by early tracheotomy.

Their further protection by continued aseptic tracheobronchial toilet.

The use of a lytic cocktail to coordinate the reticular mechanisms of the brain-stream, and control rigidity, restlessness, and hyperthermia.

Avoidance of oral feeding during unconsciousness.

Maintenance of physiological tensions of oxygen and CO_2 in the blood.

Maintenance of fluid and electrolyte balance and calorie intake.

Combating of infection by use of antibiotics.

Relief or prevention of secondary cerebral oedema by use of intravenous triple plasma.

It is not enough to wait until the patient reaches a special centre. The important factor is treatment along these lines as soon as possible after the accident.

If proper attention is given to respiratory insufficiency early enough, many patients previously considered hopeless will survive. In our experience the mortality has already been lowered, in these cases, from 90 per cent to below 40 per cent, and with further improvement in technique it can probably be lowered to 20 per cent.

The important fact, too, is that not only will the majority who survive make a good physical recovery, but they will also make a rapid return to a nearly normal mental state and will not end up as mental defectives, a burden to themselves and the community. In fact, many will be able to return to productive work.

Drug Treatment of Hyperthyroidism in Pregnant Women

BOHN AND IMHOLZ (*German M. Monthly*, **2**: 145, 1957) write that the treatment with anti-thyroid drugs of progressive hyperthyroidism, which has its origin during pregnancy, has in the past been viewed with some reservation, if not complete rejection. It has been thought that the hypothyroid metabolism may endanger the child and even lead to goitre formation. On the other hand, there are reports of good therapeutic results. A case is reported of severe thyrotoxicosis, which had begun in the eighth month of pregnancy following a febrile infection and had failed to respond to either x-radiation or sedation and relaxation treatment.

It was, however, controlled with 1-methyl-2-mercaptoimidazole (20 mg. t.i.d. for a total of 3,180 g. up to the time of childbirth. At term an hypothyroid child was delivered. Within 10 days, however, the child showed spontaneous regression of all signs of hypothyroidism.

The antithyroid treatment of hyperthyroid pregnant women should, if possible, only be begun in the second half of pregnancy, and then with minimal doses. It should be continued only as long as absolutely necessary. During the first half of the pregnancy a subtotal thyroidectomy is preferable. Antithyroid drugs must not be given during the period of breast-feeding or, conversely,

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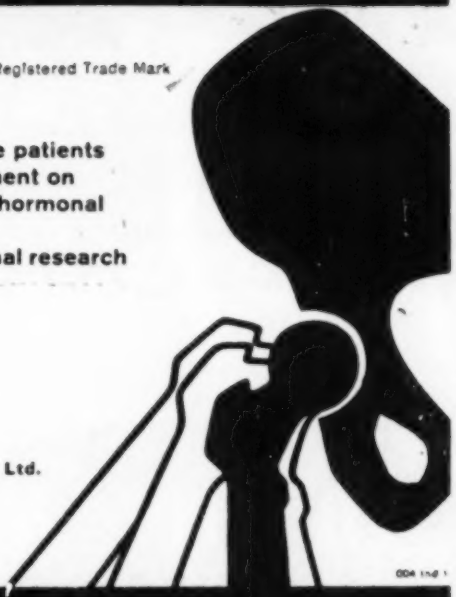

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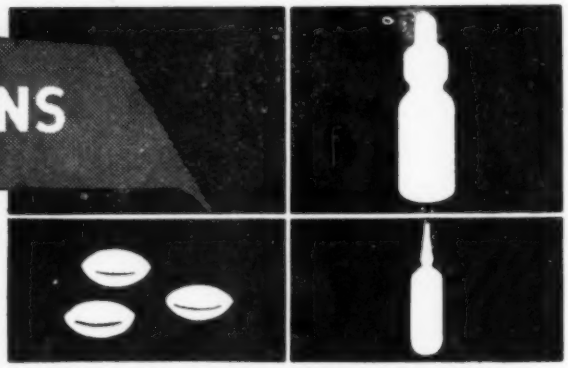

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a woman who after confinement still needs antithyroid drugs must not nurse her child.

Coarctation of Aorta and Pregnancy

SHANAHAN, W. R., ROMNEY, S. L. AND CURRENS, J. H. (*J.A.M.A.*, **167** : 275, 1958) from the Boston Lying-in Hospital, the Massachusetts General Hospital and the Department of Obstetrics, Harvard Medical School, write that pregnancy is not rare in patients with coarctation of the aorta and the possibility of the existence of this abnormality should be considered in every case of hypertension occurring during pregnancy or soon thereafter. The absence of toxaemia of pregnancy and foetal mortality in patients with coarctation of the aorta is impressive, and only one report was found that mentioned such an occurrence. This is in sharp contrast to the incidence of toxaemia of pregnancy in patients with hypertension from other causes, which varies in reports in the literature from 10 to 30 per cent. Coarctation of the aorta associated with pregnancy is an important abnormality which requires operation in many cases. Although there is not sufficient evidence to draw definite conclusions about the optimal time for resection, if resection of the coarctation is planned, it should probably be deferred until after delivery. The apparent lack of cardiovascular complications during labour argues against caesarean section and in favour of pelvic delivery for patients with coarctation of the aorta.

Serum-Lipids and Blood-Sugar Levels in Childhood Diabetes

WOLFF, O. H. AND SALT, H. B. (*Lancet*, **1** : 707, 1958) from the University Department of Paediatrics & Child Health and Children's Hospital, Birmingham, give in the following lines the summary of their observations on the study of the serum-lipids and blood-serum levels in childhood diabetes :

Specimens of blood from 35 children, all under good or fair diabetic control, were analysed for the levels of sugar in the blood and for the levels of total lipid, lipoprotein-lipid in three electrophoretic fractions, cholesterol, esterified fatty acid, and phospholipid in the serum.

The mean levels of beta-lipoprotein lipid, cholesterol, and esterified fatty acid in the serum were significantly higher in the children with blood-sugar levels above 200 mg. per 100 ml. than in those with levels below 200 mg. per 100 ml. A progressive rise of beta-lipoprotein level in the serum was observed with a rising blood-sugar level.

In three hitherto untreated patients with only moderate or slight ketosis the initial levels of serum-lipid were high, the rise being largely due to the beta-lipoprotein fraction. Under treatment with insulin, as the blood-sugar level fell the level of beta-lipoprotein in the serum also fell; in 2 cases it reverted to normal within one or a few days.

One girl, a long-known diabetic, was found to have a very high level of total lipid and beta-fraction in her serum when admitted in coma. Her recovery was complicated by gangrene and peripheral neuritis. Four months after the coma, when the complications were still present, her serum-lipoprotein pattern was within the normal limits when the blood-sugar level was near normal. In this case the serum-lipid abnormality preceded the development of arterial disease but remained reversible despite the persistence of complications.

The results support the hypothesis that hyper-betalipoproteinaemia develops whenever insufficient carbohydrate is available for metabolic needs. The high levels of beta-lipoprotein and cholesterol in the serum resemble those known to precede the development of atheroma in non-diabetic persons. Although the increased amount of beta-lipoprotein has not been proved to cause the early development of arterial complications in juvenile diabetics, the facts strongly suggest the desirability of maintaining normal serum-lipid patterns.

CURRENT TOPIC

THE BUCHAREST INSTITUTE OF ONCOLOGY : CITADEL OF FIGHT AGAINST CANCER*

V. IONESCU

The cancer diagnosed and treated in time is curable! It is in aid of this truth, recognised by science, that a tireless fight is being waged in Rumania against this ruthless disease.

Some ten years agd, in 1949, the Institute of Oncology was set up in Bucharest. In the ensuing years, branches of the Institute were organised in the university centres of Cluj, Iasi, Timisoara and Tirgu Mures; a network of oncology services is now spread all over the country, which takes in all the regions, certain provincial districts and certain wards of Bucharest.

In the Bucharest enterprises some 300,000 people underwent thorough medical examinations. The aim of these examinations was to help establish the incidence of pre-cancerous conditions and of cancer in various organised collectives, as well as the possibilities for their prevention.

The action for the early diagnosis and treatment of cancer assumes ever larger proportions.

The organisation of the Institute of Oncology corresponds to several purposes. It is a methodological and organisational centre of the fight against cancer for the entire country and a centre of cancer therapy for the town of Bucharest. One of the tasks of the section of methodology, organisation and documentation is the card-indexing of the sick.

The library—a vast collection of specialised works with a rich bibliographical and card-index cabinet—enables the research workers to keep abreast of the conquests of science in the field of oncology.

The in-patient clinic of the Institute includes a consultation service, also sections for x-ray diagnosis, radiotherapy, chemotherapy and surgery, all of them staffed with physicians of various specialities. A big dispensary gives medical consultations to some 200 out-patients daily. Another section of the Institute includes the laboratories of pathological anatomy, current clinical analyses, hormonology, biology, experimental cancer, hypothermia, etc., new laboratory of medical research

* From the Embassy of the Rumanian People's Republic, New Delhi.

by means of radio-active isotopes will start functioning soon.

The most important results in the activity of the Institute were put down in the works sent to the Congress held in London in 1958. Mention was made on this occasion of the therapeutical successes obtained in the treatment for cancer of the uterus by the combination of surgery and radiation. In cases of advanced cancer, the Institute applies the radio-therapeutical treatment with massive, unique doses under narcosis. The significance of this method lies in the fact that, the patient being under narcosis, is given in a single treatment a dose of radiations which in different conditions he should have had in several treatments.

The workers at the Institute have recently started to study the artificial hibernation, a new treatment method on which specialists have set high hopes.

The Rumanian atomic reactor which started producing radio-active isotopes that last year has greatly helped the Institute of Oncology to improve a number of methods pertaining to research work, diagnosis and treatment. With the commissioning of the laboratory of research by means of radio-active isotopes, the activity in this sphere will get substantially enriched.

Starting from the universally recognised premise that the tracking down and treatment on a mass scale of precancerous conditions has as a result an unquestionable diminution of the incidence of the disease, medical authorities in Rumania have undertaken a vast action for the popularisation of the knowledge of cancer among the ranks of the population and the physicians. The Institute of Oncology has made its contribution to this vast action by organising the medical education of the public through lectures, brochures, diafilms, etc. and by initiating courses where specialists and, in general, all the physicians can study the problem of cancer.

In the nearly ten years since its inception, the Institute of Oncology in Bucharest has developed a scientific activity which is known in many foreign countries as well. The Rumanian oncologists read reports at the Congress in London (1958), at the congresses in Toronto and Belgrade (1957), at the all-union conference on cancer in Leningrad (1957), as well as at other international scientific meetings and at the two international conferences on the peaceful uses of atomic energy.

Many foreign scientists who visited the Institute also remarked on the systematic organisation of the fight against cancer in Rumania. Among them there were professor Flaviano Magrassi, director of the Institute of pathology of Naples, Academician A. Lacassagne, honorary director of the Curie Institute of Paris, Professor Arnold Graffi of Berlin, Professor Holdin of Leningrad, Dr. C. K. Woeber of Bonn, Dr. Heymlich of U.S.A. and others.

NOTES AND NEWS

U.K.'s New Mental Health Bill

Sweeping new safeguards for the mentally afflicted, and protection of their liberty are proposed in the British Government's new Mental Health Bill, recently published.

The measure is aimed to give sufferers from any form of mental illness the maximum encouragement to seek treatment promptly and voluntarily.

It lays down that compulsory powers of detention will be exercisable only where no other appropriate methods are available to deal with a patient.

The new Bill also scraps the present system to limit treatment of "persons of unsound mind" to so-called "designated hospitals". Authorities will be able to arrange for any kind of hospital to receive any type of mental patient—whether on an informal basis or under detention.

Under the new law, the terms 'mentally defective', 'idiot', 'imbecile', 'feeble-minded person' and 'morally defective' will no longer be used. The phrase "suffering from mental illness" is used instead of "person of unsound mind". The single term 'mental disorder' is introduced to cover all forms of mental illness or disability.

Cobalt Therapy Units

Sales to India, Ceylon and France of 200,000 dollars worth of cobalt 60 therapy units for cancer treatment were announced recently by the Commercial Products Division of Atomic Energy of Canada Limited.

The company said the shipment was the largest made in the Western world. It consists of five therapy units and six cobalt 60 sources which provide gamma rays to attack cancer.

Three of the units and their sources were shipped recently for cancer clinics in Calcutta, Bombay and Ludhiana.

A separate cobalt 60 source for a clinic in Madras has also been shipped.

The units and sources for India and Ceylon were being paid for out of Colombo Plan funds.

Frontiers Hamper Epidemics Fight

The setting up of a regional Council of medical experts from India, Pakistan, Burma and Ceylon for the adoption of coordinated and simultaneous action for the eradication of smallpox, cholera, malaria and other diseases endemic in these countries has been suggested by Dr. I. A. Cockburn, Provincial Health Adviser to the East Pakistan Government.

Dr. Cockburn, who headed the international team of medical experts diverted to East Pakistan by the International Cooperation Administration to combat last year's severe smallpox epidemic, feels that such cooperative efforts alone can result in complete eradication of these diseases from the countries mentioned.

He thought that the West Bengal expert committee's recommendations for the control of smallpox on a national scale was a move in the right direction but said that unilateral action by one country, however comprehensive it might be, could not prove successful unless boosted by similar control measures in its immediate neighbouring countries.

Observing that diseases like smallpox and cholera could not be confined by national boundaries, he re-

ferred to India's ambitious programme for the eradication of malaria already taken in hand. This was bound to fail, he said, unless similar anti-malaria measures were adopted in East Pakistan.

Dr. Cockburn, who served for two years in Ceylon as the W.H.O. health adviser to the Government, observed that Bengal was the only area where cholera was endemic throughout the year. If cholera could be wiped out from Bengal, it could be removed from the face of the earth, but "you cannot do so with a political boundary running through the middle of your control efforts."

School for the Blind

A model school for blind children was inaugurated by Dr. R. K. Bhan, Deputy Educational Adviser to the Government of India at Dehra Dun on January 4, 1959.

The school forms part of the National Centre for the Blind. A provision has been made for the admission of 50 children between the ages of five and thirteen from different parts of the country. The expenses would be borne by the Union Education Ministry.

There is also a proposal to start a teachers' training school in the premises of the model school. This school forms part of the development programme of the training centre for the blind in Dehra Dun for which Rs. 68 lakhs have been earmarked in the Second Five-Year Plan.

Training Centres for Opticians

The Government of India have decided to give financial assistance to State Governments for training refractionists and opticians during the remaining period of the Second Plan.

According to an official Press release, it is proposed to establish six training centres under this scheme. The Ministry of Health has approved the establishment of centres at the following institutions : (1) Gandhi Eye Hospital, Aligarh, (2) Government Ophthalmic Hospital, Madras, (3) Sarojini Devi Hospital, Hyderabad, (4) Government Ophthalmic Hospital, Trivandrum, and (5) Sitapur Eye Hospital, Sitapur.

The pattern of financial assistance by the Union Government envisages 75 per cent non-recurring and 50 per cent recurring aid, the estimated expenditure on each centre being non-recurring Rs. 100,000 (building and equipment) and recurring Rs. 16,300 (staff and contigencies) a year.

National Register, Government of India

The Government of India is compiling a National Register of all qualified Scientific and Technical Personnel of the country for the assessment and proper utilisation of existing talent as well as for planning for the future.

It was established in 1948 by the decision of the Cabinet of the Government of India and re-organised in 1957-58. Purpose of this register is

1. To provide comprehensive and authoritative information on national resources of scientific and technical manpower. 2. To serve as a clearing-house for information on resources of and requirements for scientific and technical man-power. 3. To develop a special section of the Register to maintain current information on Indian nationals studying or working in technical fields in foreign countries. 4. To provide information in individuals having highly specialised training and experience, when an appointing authority finds it difficult to get suitable candidates to respond to public advertisements. 5. To assess the gaps in the training and utilisation of scientists and technologists through technical manpower research.

The National Register Unit prepares study reports based on the information contained in the Register. The reports, among other features, indicate the growth of employment opportunities in various fields.

It supplies available information about the registered persons when any employer calls for it. It also publishes directories of overseas trained personnel for circulation to about 1000 employing agencies both in public and private sectors in the country.

The National Register enrols the following categories of personnel :

(a) holding at least post-graduate degree in a Science subject, (b) holding at least a bachelor's degree in Agriculture, Veterinary Science and other specialised fields, (c) holding degree or diploma in engineering and tchnology and (d) medical specialists (including post-graduates and those with research qualifications).

Registration of persons who still remain unregistered is requested. It is done through Card 'G' only which is available with :

1. Union Public Service Commission and all State Public Service Commissions. 2. All Employment Exchange Offices (employed persons may also obtain cards from the Exchanges). 3. All National Laboratories of the C.S.I.R. 4. National Register, C.S.I.R., Old Mill Road, New Delhi.

Cortisone in India

In addition to Vitamin A, the Fine Chemicals Division of Glaxo Laboratories is now making cortisone and its derivatives, hydrocortisone, prednisone and prednisolone, in India.

At present they are manufacturing cortisone from an imported intermediate. But in progressive stages, extending over a period of four years, they plan to undertake the whole manufacture in India. Not only is this a pioneer achievement by Glaxo, but it represents a step forward in the economic development of the country.

Uttar Pradesh Medical Council

The name of Dr. Sangam Lal Kapur, L.M.P. (Agra, 1919) who was registered with the U. P. Medical Council under registration certificate No. 821 dated July 21, 1919, has been erased from the Uttar Pradesh Medical Register on December 10, 1958 under section 26 of the U. P. Medical Act, III of 1917, by the order of the Uttar Pradesh Medical Councils.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Neonatal Myopic Moulding

SIR,—As a long practising ophthalmic surgeon, I am trying to establish whether or not, the impact of glare on the eyes of the newborn infant, is a definite factor in the causation of the increased incidence of acquired visual errors. Till about a generation ago, the mother and newborn infant used to remain in fairly darkened rooms for several days after confinement. Visual errors then, were not encountered in as much alarming proportion as now, when infants are exposed to broad daylight or high-powered fluorescent or incandescent light from the very moment of birth. I believe this early and excessive photo-stimulation leads to spasm of the internal and external muscles of the eye, causing more myopic moulding of the eye, while the tissues are elastic. I shall welcome any suggestion from your readers in support of or against my contention. I am etc.

Bombay — V. V. GUPTA, M.B.B.S., D.O.M.S. (ENG.)

REVIEWS

Essentials of Human Physiology—By Prof. S. M. Banerji, M.SC., M.B. Published by Messrs. S. Bhattacharya & Co., 49, Dharamtala Street, Calcutta 13. Board bound in cloth with paper jacket, 5½" × 8¼", pages 491 plus xvi. Price Rs. 20·00.

This comprehensive and readable text book has been written by an experienced physiologist. In this beautifully produced volume there are three plates in colour and several illustrations some of which have been drawn by the author himself. Throughout the text there is ample evidence of the author's skill as a teacher. This book will undoubtedly lighten the burden of those students for whom revision of Physiology is an essential task just before an examination. The emphasis laid on the clinical aspects of Human Physiology has made the volume specially useful to the medical students.

The Mammalian Cerebral Cortex—By D. Delisle Burns, B.A. (CANTAB.), M.R.C.S., L.R.C.P. Published by Messrs. Edward Arnold (Publishers) Ltd., London. Pages 119 plus VIII. Price 21s.

The monograph gives an interesting series of discussions on (a) the general properties of neurologically isolated, mammalian, cerebral cortex, (b) the spontaneous activity of central neurones, (c) the transmission of excitation within the cerebral cortex, (d) the problem of memory and (e) the phenomena of afterdischarges. Examples have been provided of afterdischarges due to self-reexciting circuits, to the persistence of humoral transmitters, to differential repolarisation and to nerve fibres being maintained in an environment deficient in calcium ions. The author has given an account of the properties which serve to distinguish the afterdischarges resulting from the above causes. On controversial issues he has given a summary of current theories and has succeeded in dispelling the existing confusions that prevail with regard to some of the important problems of neurophysiology. The monograph is noteworthy for its logical approach and will be extremely useful to the reader who wishes to pursue further work on the many stimulating problems which emerge from a careful perusal of the text. The neurophysiologists will be grateful to the author for this informative and instructive monograph.

Punjab Medical Journal, Vol. III, Nos. 1 & 2, August and September 1958; special issues with modern treatment, parts I and II—Edited and published by Dr. R. R. Laroia, M.B., B.S. from Sodal Road, Jullunder City, Punjab, India; annual subscription Rs. 6/- (inland).

Dr. Laroia, the editor and publisher must be congratulated for these two consecutive issues which contain various articles on modern treatment from the pens of a large assortment of well-known and respected authors. It can be well foreseen that these articles will prove of great use to the large number of readers of this journal who are not necessarily restricted to the Punjab.

OBITUARY

Dr. C. B. Lal Dina

Dr. C. B. L. Dina was born in 1875. At the age of 18, he joined the Medical School, Agra, qualifying in medicine and surgery in 1899. Dr. Dina joined Government service soon after. He was posted in different States of Rajputana until 1914 when, during World War I, at the call of the British Government for volunteers, he offered himself for Military Services, Overseas, and was posted abroad from 1914 to 1917. His meritorious, gallant and distinguished services in the field were suitably rewarded and were mentioned in the despatch, dated 1-3-1919 of Mr. Winston Churchill, War Secretary of the State, from Whitehall, London. After the War he was posted in some of the hospitals of Varanasi until he retired in 1931. He was associated with the work of Bharat Dharm Mahamandal and was awarded the title of Bhishak Ratna by H. H. the Maharajadhiraj of Darbhanga. Dr. Dina was also associated with the Anti-Tuberculosis Dispensary, Banaras; Harijan Sevak Sangh, Allahabad; Bhinga Raj Anathalaya, Banaras and Kashi Tathva Sabha, C/o. Theosophical Society.

DR. C. B. LAL DINA

A member of the Indian Medical Association, Dr. Dina was vice-president of the Banaras Branch, I.M.A., for sometime. He passed away on December 20, 1958.

SUPPLEMENT
Journal of the Indian Medical Association

VOL. 32, No. 3 CALCUTTA FEBRUARY 1, 1959

BRANCH NOTES

ALLAHABAD BRANCH—A meeting of the branch was held on 4-12-58. The members condoled the death of Dr. K. C. Mitra, a member of the branch.

The annual report of the branch for 1957-58 shows a slight increase in membership. Twenty-three meetings were held during the year,—3 scientific, 2 clinical, 7 general, 2 executive, 1 meeting for Republic Day and the other for Independence Day, and condolence meetings. Three regular members of the branch went abroad for higher studies and for attending conferences. Dr. S. C. Sen, an ex-president of I.M.A., paid a visit to this branch and was entertained to a luncheon given by the president and secretary of the branch. Dr. Shivapuri, the president of the U.P. State Branch and the secretary of the State branch Dr. Siddhu were present on this occasion. In the library report, it is found that Rs. 555·84 nP. was spent during the year on new books and Rs. 236 for Journals.

ASANSOL BRANCH—Under the auspices of the branch, a meeting of the prominent citizens of all professions was held on 29-11-58 to discuss the present position of BCG in prevention of Tuberculosis, in collaboration with the directorates of Health and Publicity of the government of West Bengal. Dr. Kolay, Asst. Dy. Director (Turberculosis) and Dr. Sukul, Supervising Medical Officer BCG, narrated the history of BCG and discussed the technical and preventive nature of the vaccine. Miss Mundt of UNICEF dwelt at length on the role of BCG in different parts of Europe, England and Soviet Russia. The speakers replied to all questions raised in this connection. At the close of the meeting, Dr. Damodaran, the president of the branch, announced that Dr. L. Roy of Burnpur had promised a donation of Rs. 1,000/- for a building of the branch and paid in cash Rs. 501/- at the meeting.

AURANGABAD BRANCH—The annual meeting of the branch was held on 7-9-58 with Dr. D. D. Prasad in the chair. The secretary's report was adopted, the audited account was passed. Election of the president and vice-presidents of the State branch was done. Office-bearers for 1958-59 of the branch were elected with Dr. D. D. Prasad as president, Dr. (Miss) B. N. Nath, Dr. R. K. Sinha as vice-presidents, Dr. A. K. Mitra as secretary, Dr. R. L. Sinhh and Dr. R. P. Sinha as joint secretaries.

The first meeting of the year 1958-59 was held on 18-10-58. The State Branch was requested to move the government for opening the condensed M.B.B.S. Course and for recognising the D.B. employees as government servants.

An extraordinary meeting was held on 28-10-58. The members viewed with concern the searching and sealing of the clinic of Dr. A. K. Mitra without assigning any reason for it and urged the authorities to speedily settle the matter.

A meeting was held on 9-11-58. The members expressed profound dismay at the harassment and humiliation to which Dr. A. K. Mitra was subjected on 24-10-58 and 29-10-58, by the subordinate officers of the government, when his clinic and residence were searched. His clinic was sealed up for 6 days and the members opined that Dr. Mitra should be sufficiently compensated for the damage to his reputation and practice. The State Branch was requested to take necessary action in this matter.

A meeting was held on 28-12-58 and it was decided to celebrate the Health Week. Dr. R. L. Singh spoke on Jaundice and its latest treatment.

CALCUTTA BRANCH—At the annual general meeting held on 6-12-58, office-bearers for 1958-59 were elected with Dr. H. K. Roy as president, Dr. R. Sinha, Dr. R. K. Datta Choudhury and Major B. L. Chuckerbutty as vice-presidents, Dr. M. K. Nandi as secretary and Dr. D. N. Ghose, Dr. R. Mukherjee and Dr. D. N. Roychoudhury as assistant secretaries. The annual report of the branch shows an increase of membership by 63. Four general meetings and 14 meetings of the executive committee were held during the year. The Doctors' Welfare Sub-Committee of the branch held 3 meetings, the Scientific Sub-Committee arranged 46 lectures, the Public Health Sub-Committee met 10 times during the year. A comprehensive School Health Programme was evolved and as this could not be implemented in the present financial condition of the State, a Priority Pilot Programme was recommended for immediate implementation. The Hospital Sub-Committee discussed the draft report of "Standardisation of City Hospitals" prepared by the sub-committee of the previous year and decided to have some modifications. The other committees and sub-committees also were active in the work entrusted to them.

COIMBATORE BRANCH—A combined meeting of the branch, the Clinical Association of the District Headquarters Hospital and the Palghat Branch was held on 12-10-58 at Coimbatore Government Headquarters Hospital. Dr. M. V. Krishnamoorthy, District Medical Officer, presided. Ninety members were present. There were demonstration of interesting cases by the Medical Officers of the various departments of the hospital, which were followed by discussions.

A meeting of the branch was held on 22-11-58. Ninety members were present. Delegates to the 13th Madras State Medical Conference and 35th All-India Medical Conference were elected. Dr. D. Paranjothy spoke on Abdominal Pregnancy.

DEOBAND BRANCH—At a meeting of the branch, the members condoled the untimely death of Dr. Subhan Ali, medical officer in-charge, Deoband Dispensary, who was an active member of the branch.

DHAKURIA BRANCH—A conference of medical men of Dhakuria, Kasba and Tollygunge was held on 30-11-58. Dr. P. N. Mazumdar presided. Dr. B. P. Tribedi, President, I.M.A. Provincial Branch, inaugurated the conference. The secretary presented the annual report. Drs. S. Dutta, N. Bhattacharjee, S. Bose, D. N. Basak and others from Calcutta were present.

DHANBAD BRANCH —The following memorandum was submitted by the branch for improvement of scale of pay and service conditions of doctors employed in collieries.

MEMORANDUM

Object : It is more than a decade that the Dhanbad Sub-divisional Branch of the Indian Medical Association sponsored a legitimate and peaceful agitation before its Provincial as well as Central Authorities to move and adopt all possible measures for the improvement of scale of pay and the service conditions of medical men employeed in collieries and representation of Indian Medical Association in different bodies related to the State and Central Governments such as, Mines Board of Health, Dhanbad Hospital Committee, Coal Mines Welfare Fund etc. To attain success, this Branch of Indian Medical Association moved different resolutions on these subjects in the Provincial and All-India Medical Conference during these years without the least success. But a few months back the Central Working Committee was pleased to appoint a 'Fact Finding Committee' to probe into these affairs and submit its Report to the former.

Hence the Dhanbal Sub-divisional Branch has prepared this Memorandum for submitting before the 'Fact Finding Committee'. It deals separately on various subjects, which are the points of reference specified by the Central Working Committee.

I. *To go into the question of medical facilities offered to the people of the Coal Mining Settlement* :

1. The total number of collieries in Jharia Coalfield Mining Settlement composed of Jharia, Bhaga, Bhojudih and Chowrasi Field is 455 and the total population is about 1,65,840 including a daily labour force of 1,29,249.

2. The medical facilities offered to this vast population are mainly from four sources, namely :

(a) *Employers* : they are required to maintain dispensaries having some emergency drugs and to employ whole-time or part-time doctors to run them.

(b) *Jharia Mines Board of Health* : a statutory body under the State Government of Bihar is to enforce certain bye-laws on health matters. Its supervisory staff consist of a Chief Medical Officer and a few Sanitary Inspectors. While the former does more an administrative job, the latter are entrusted with the duties of supervising the colliery dispensaries. It also maintains one small I.D. Hospital. It also serves all other municipal functions.

(c) *Coal Mines Welfare Organisation* : It also is a statutory body under Central Government financed by levy of a cess on each and every ton of coal despatched. It maintains a Central and two Regional Hospitals, which receive and treat patients.

(d) *A Government Civil Hospital at Dhanbad and some District Board Charitable Dispensaries* : These are mainly meant for population other than those from collieries.

3. According to the existing bye-laws of Jharia Mines Board of Health each colliery having a labour strength of 500 and above shall have to provide a whole-time doctor, that having a labour force above 30 but below 500 a part-time doctor, that having a labour force below 30 shall not have to maintain a doctor. The following statistics may be authoritatively quoted from an official document of Jharia Mines Board of Health :

No. of collieries	Full-time doctors	Part-time doctors	Labour force
96	96	nil	1,18,577
167	nil	67	24,263
193	nil	nil	23,000

In addition, there are also 6,00,000 other population who are directly or indirectly connected with coal mining Industries and for medical aid they have to make their own arrangements.

5. From the above figures it is clear that inadequate medical aid is being offered to a large section, a considerably big section gets very little aid and roughly one-fifth of the labour population does not get any medical aid whatsoever.

6. As to the equipment of drugs and appliances, big collieries maintain fairly good stock though in most of the cases it is far from satisfactory, but three-fourths of them keep very little stock which is also stale and out of date just to evade prosecution.

7. Inadequacy of medical aid has recently prompted the Coal Mines Welfare Fund to offer subsidies to these Colliery Dispensaries, but uptill now response is very poor but the terms and conditions for granting subsidies are not at all favourable for small collieries.

8. Part-time doctors cannot pay more attention to their jobs as they are poorly paid and as they are well aware that their appointments are meant to evade legal proceedings.

9. Fair survey of the above facts clearly indicate that the medical facilities offered to the vast population of Jharia Coal Mining Settlement is very poor and a large population of it remains without any medical care.

II. *To study the service conditions of the medical men in the coal mining areas* :

1. The medical men employed in collieries may be classified :

(a) Whole-time doctors—those employed in big collieries having labour strength 500 and above

(b) Part-time doctors —those employed in the collieries having labour strength below 500 and all of them are appointed by the colliery authority.

2. While the service conditions of the whole-time doctors employed in big collieries are somewhat satisfactory but that of those employed in comparatively smaller ones and part-time doctors is far below the minimum standard existing in India.

3. The adverse conditions during the tenure of service of a medical man employed in a colliery may be broadly described as below :

(i) The basic pay offered is very poor. The average pay of a whole-time may be estimated as Rs. 100/- to Rs. 200/-, that of a Licentiate as Rs. 60/- to Rs. 100/- and that of a part-time doctor as Rs. 15/- to Rs. 60/- per month.

(ii) Leaving aside a few exceptions, there is no grade of scale of pay of Medical Officers.

(iii) As most of the medical men employed in collieries live in out of the way places and have very little time to spare, they enjoy little or no scope of practice. But to our knowledge not a single medical man enjoys nonpractising allowance. Generally they are debarred from any private practice.

(iv) There is no security of service.

(v) Mostly the residential facilities offered to Medical Officers are much below the standard or their expectations befitting the position.

(vi) Other facilities, such as leave, rest on Sundays are also lacking. Prior to proceeding on leave he has to arrange his substitute.

(vii) There is marked insufficiency of ancillary staff, —most of doctors have to work single handed.

(viii) Due to their being placed in backward places and being financially handicapped, education and general bringing up of their children suffer a lot and hence their future is not bright.

III. *To study the question of representative of Indian Medical Association for relevant Committees whether Local, State or Centre* :

1. There are three statutory bodies—

(a) Jharia Mines Board of Health

(b) Coal Mines Welfare Fund

(c) Jharia Water Board

which are supposed to deal with health, sanitary and welfare matters of the coal mining area.

(a) *Jharia Mines Board of Health* : The Board consists of representatives of colliery owners, nominated mem-

bers of the State Government and some *ex-officio* members.

(b) *Jharia Water Board* has also similar representatives.

(c) *Coal Mines Welfare Fund*: It has got an advisory Committee consisting of members nominated by the Central Government from different interests, e.g., colliery proprietors, employees, Labour Unions, Governments of India, West Bengal, Bihar and Madhya Pradesh. There is also a Hospital Advisory Committee consisting of nominated members from different sources.

2. For obvious reasons we are rightly demanding for the last few years representation of the Indian Medical Association in the above bodies. Recently Government of India agreed to allot a seat for this branch of Indian Medical Association in the Hospital Advisory Committee. Recently a member of our profession has been co-opted in Coal Mines Welfare Fund Advisory Committee but he does not represent the Indian Medical Association. Our demand is that this branch of the Indian Medical Association should have a representative in the Coal Mines Welfare Fund.

3. The object of this Memorandum is to request the State and Central bodies of the Indian Medical Association to take up the matter with right earnestness for successful negotiations. The Indian Medical Association must impress upon the respective Governments that our Association is the only responsible body which can give proper and technical advice on these subjects to be dealt by the above authorities.

IV. *To study other allied subjects*: It has been suggested by this Branch of the Indian Medical Association that in order to solve all problems and offer best medical facilities to the mining population to co-ordinate all the medical units in the coalfield and to encourage better relation between the Medical Officers and their employers, the Central Government should constitute another Statutory Body with proper representatives from colliery owners, employees and Medical Association. The following resolution referring to the above mentioned objects was moved in the past State Conference and it is embodied in this Memorandum for due consideration:

"This conference reiterates its previous resolution that the Central Government be requested so that a Board be constituted immediately to take over the medical arrangements in the Mining Settlement of Dhanbad.

The Board shall be an autonomous Body and shall consist of representatives of (1) Government of India, (2) State Government, (3) Colliery Employers, (4) this Branch of Indian Medical Association, (5) the Colliery Employees and a cess levied by the Government of India on collieries will meet the cost of the Board.

The function of this Board will be to appoint medical officers, medical personnel to take over, equip or run dispensaries and hospitals in the coalfield. Persons thus appointed will be responsible only to the Board as regards their duties who in their turn will add to the security of their services, graded scale of pay, provident fund, pensions, gratuity etc. as per rules to be made from time to time."

The report of Coal Mines Labour Welfare Committee, I.M.A. (Central), is also given below.

In consideration of the statements made about the present set-up of medical and public health care for the population of Mining Settlements of the different parts of the country, the Committee is of opinion that the followng should be implemented:

1. A Board be constituted under the Central Government to take over the administration of Medical and Public Health Organisation in the Mining Settlements of each zone viz. Asansol, Dhanbad (in West Bengal and Bihar, respectively) and Madhya Pradesh etc.
2. A Board shall be autonomous and shall consist of:
   (a) Government of India
   (b) State Government of the Zone
   (c) Representative of the employers' organisation
   (d) Representative of the employees' organisation
   (e) Representative of the Indian Medical Association
   (f) Other interested concern.
3. The Board shall receive—
   (a) A cess levied by the Government of India on collieries
   (b) Contribution from Coal Mines Welfare Funds
   (c) Contribution from State Governments
   (d) Contribution from Municipalities under the Mining Settlement.
4. The Board as proposed will be an instrument to end the present diarchy in the medical and public health administration and to establish an unitary control so as to achieve efficient, planned and co-ordinated medical and public health work. The Board shall be predominantly constituted by medical men.
5. The Medical and Public Health Department of all collieries should be directly under this Board.
6. Medical officers and other ancillary staff should be whole-time and should be given a scale of salary and should have security and all other facilities as provided under Central Government service.
7. For a few contiguous small collieries—one Medical Officer may be posted with the clinic located at the suitable site so as to render medical aid to the workmen of the relevant small collieries.
8. The Central and Regional Hospitals should be properly staffed. The absence of house officers in the present set-up of the hospitals is mostly responsible for the poor standards of work.

GHUGUDANGA BRANCH—A meeting was held on 28-12-58. Seven members were present. Dr. S. Sarker presided. A sub-committee was formed to start a medical store on a co-operative basis. The secretary was empowered to contact the Health Officer, Cossipore, for mass vaccination against smallpox in the locality before the epidemic breaks out.

GURDASPUR BRANCH—The annual meeting of the branch was held on 28-12-58. Office-bearers for 1958-59 were elected with Dr. M. S. Ahlwat as president, Dr. Satya Pal as vice-president, Dr. B. S. Sachdev as secretary and Dr. V. K. Bhandari as joint secretary.

JABALPUR BRANCH—A meeting of the branch was held on 18-12-58. The members condoled the death of Dr. Bunyan, a prominent member of the branch.

JALGAON BRANCH—The general body meeting of the branch was held on 6-12-58. Office-bearers for 1958-59 were elected with Dr. C. N. Vyas as president, Dr. D. R. Kulkarni as vice-president, Dr. M. S. Rane as hony. secretary and Dr. K. W. Pavadkar as joint secretary.

KARIMNAGAR BRANCH—A clinical meeting of the branch was held on 21-12-58. Dr. Mohd. Gulam Nabi presided. Dr. K. N. Waghray, Assistant District Medical Officer, read a paper on Medicolegal Aspects. The District Medical Officer, Karimnagar, narrated a case of Rupture of Uterus in a female of 30 years, operated by the Suture of Uterus by Dr. Gulam Nabi. Dr. Raghavendra Rao was elected to represent the branch at the A.-I. Surgeon's Conference, to be held on 27-28 December 1958. Dr. Gulam Nabi was elected to represent the branch as delegate at the A.-I. Gynaecological Conference to be held on 3-4 January 1959.

KOTHAGUDIUM BRANCH—The Annual General Body Meeting of the Branch was held on 28th October 1958 with Dr. T. C. Ramachandani, President, in the chair. 10 members attended the meeting. The names of Dr. T. C. Ramchandani, and Dr. B. Das, were proposed for president and honorary secretary respectively for the current year and they were unanimously elected. The annual report and the statement of account for the past year were presented and adopted unanimously.

Dr. Paramasivan, Malaria Officer, gave a talk on Eradication of Malaria.

A meeting of the branch was held on 3-12-58. Dr. T. C. Ramchandani presided. Twelve members were present. The proceedings of the annual general body meet-

ing were confirmed. Dr. (Mrs.) E. Kuppuswamy spoke on a Case of Cerebellar Abscess with vague clinical manifestation and diagnosed after an autopsy. Dr. S. Vaidyanathan spoke on a case of Malignant Disease of the Kidney with special reference to recent advances in diagnostic methods and treatment. Dr. H. M. Jagannatha Rao spoke on Recent Advances in the Treatment of Tetanus with special emphasis on muscle relaxants, tracheotomy and positive pressure respiration.

KURNOOL BRANCH—The annual meeting of the branch was held on 15-10-58 with Dr. G. Balasubbaiah as president. Office-bearers for 1958-59 were elected with Dr. K. Ramesh Pai as president, Dr. G. Balasubbaiah and Dr. P. Jaganatham as vice-presidents, Dr. S. Sreenivasa Reddy as hony. secretary and Dr. V. Satyanarayanamurthy as joint secretary. The following papers were read: (1) Tuberculous Meningitis in Children by Dr. L. G. Krishnaiah, (2) Relationship Between Upper and Lower Respiratory Tract in Infection by Dr. G. Lakshmipathy. The following cases were demonstrated: (1) Three cases of Tuberculous Meningitis by Dr. L. G. Krishnaiah, (2) Foreign Body in the Bronchus, (3) Cerebral Vascular Accidents by Dr. K. B. Krishna Mohan.

LUCKNOW BRANCH—The annual elections of the branch were held on 19-10-58. Office-bearers for 1958-59 were elected with Dr. S. P. Gupta as president, Dr. R. N. Gupta and Dr. Man Singh as vice-presidents, Dr. Ananta Charan as secretary and Dr. B. N. Mehrotra and Dr. (Miss) Mina Mukherji as joint secretaries. The annual report shows that the membership strength was 200, the year having an increase of 29 members. Six executive committee and 17 general meetings were held and scientific sessions were also conducted. The branch contributed nearly Rs. 5,000 towards the Building Fund of the Central Office.

MADURA BRANCH—A meeting of the branch was held on 2-11-58. Dr. M. Venkatachalam Chetty presided. Dr. R. Subramaniam, physician, General Hospital, spoke on Drug Therapy and Hypertension.

NILGIRI DISTRICT BRANCH—A meeting of the branch was held on 13-12-58 with Dr. Jeevarathanam in the chair. Dr. Morris Schaeffer, Director, Virus and Rickettsial Unit, Communicable Diseases Centre, Montgomery, gave a talk on Different Diagnosis of Central Nervous System infections. The scientific session held, was presided over by Dr. A. C. Saenz of WHO, Geneva.

POONA BRANCH—A special meeting of the branch was held on 14-12-58. A symposium on some of the important Advances in Medical Sciences was arranged. Dr. Shantilal C. Sheth spoke on Paediatrics, Dr. Renato Gracias on Infectious Diseases, Dr. K. K. Datey on Cardiology, Dr. K. C. Gharpure on Surgery and Col. Inder Sing on Medicine.

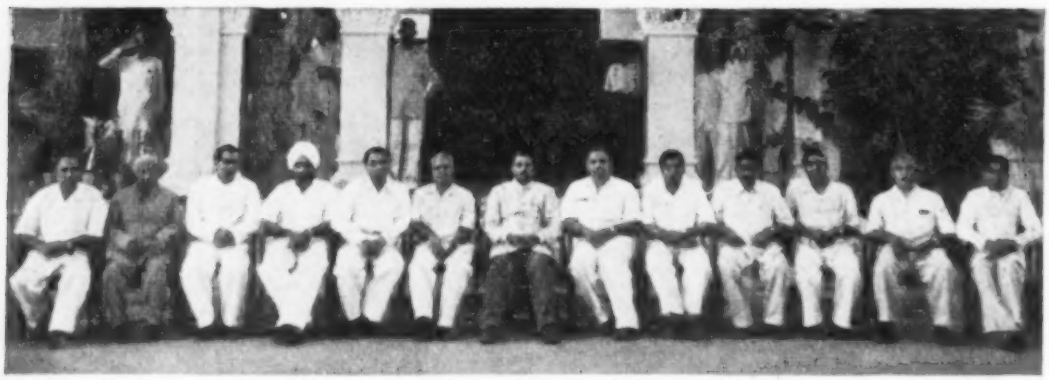
RAJKOT BRANCH—At a meeting held on 5-12-58, the members requested the Life Insurance Corporation authorities to place the Licentiates on the same footing as graduates regarding allowing of maximum limit for medical examination of cases for Insurance.

SHIMOGA BRANCH—A clinical meeting was held on 13-12-58. Dr. D. Krishna Murthy presided. A symposium on Orthopaedic Tuberculosis was held. Dr. H. K. Srinivasa Murthy, Dr. M. Gurudas, Dr. D. Shamanna, Dr. B. R. Shama Rao and Dr. H. R. Basavaraj participated in it.

SIMLA BRANCH—The annual meeting of the branch was held on 28-12-58. Dr. J. Singh, Civil Surgeon, presided. Office-bearers for 1958-59 were elected with Dr. J. Singh as president, Dr. Mathur as vice-president and Dr. P. R. Dass Gupta as hony. secretary. The annual report of 1957-58 shows that 4 general body meetings, 8 clinical meetings, 6 executive body meetings and 1 farewell meeting were held during the year. In the clinical meetings important subjects were discussed. Three medical films were also shown. It was opined in this annual meeting that more vigorous steps should be taken by the Association to safeguard the interests of the profession.

TONK BRANCH—A meeting of the branch was held on 26-10-58. Dr. B. N. Sharma presided. Members were requested to take more interest in the activities of I.M.A.

UTTAR PRADESH STATE BRANCH—The 3rd meeting of the Working Committee of the branch for the year 1958-59 were held on 4-12-58. Dr. R. N. Tandon presided. Eleven members were present. The meeting condoled the death of Dr. Babu Ram Garg of Muzaffarnagar. Proceedings of the meeting held on 25-10-58 were confirmed. The amendments to Rules and Byelaws of I.M.A. circulated by the Central Office were considered. The circular of the Central Office regarding 35th All India Medical Conference was considered and it was decided to send the observations of the Committee to the Central Office for consideration. The report of the Sub-Committee appointed by the Working Committee, I.M.A., Central Office, regarding procedure of election of presidents and vice-presidents was considered and it was suggested that the old procedure of election on the basis of one vote for each branch should be re-adopted. It was resolved that the Union and the State Governments be requested to accept the recommendations of the Central Office, I.M.A. regarding the pay, status, remuneration and allowances of medical men instead of those given out in the press note issued by the Union Ministry of Health. It was decided to send a deputation to the State Government in this connection.



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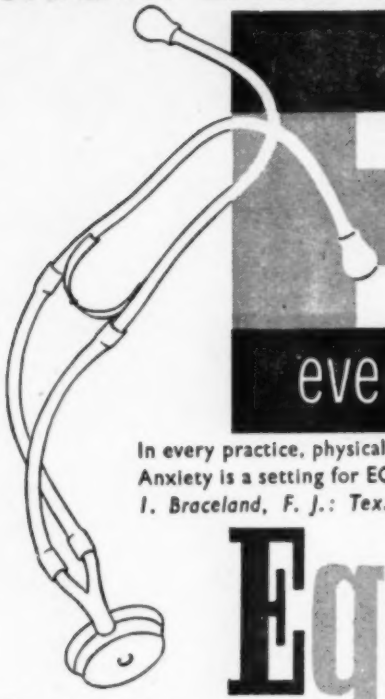

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1. Braceland, F. J.: Tex. State J. Med., 51 : 287, 1955.

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Anxiety & Tension	Major surgery	Peptic Ulcer	Epilepsy	Arthritis
Apprehension	Post-operative Care	Mucous colitis	Tetanus	Bursitis
Insomnia	Medical Dentistry	Menstrual Disorders		Low Back Pain
Premenstrual Tension	Psychotherapy	Tension Headache	E. C. T.	Spondylitis
Pregnancy Anxiety		Hypertension		Osteoarthritis
Alcoholism		Myocardial Infarction		
Behaviour problem		Neurodermatitis		Lumbago Wry-neck
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